

=> d his

(FILE 'HOME' ENTERED AT 16:46:30 ON 03 SEP 2003)

FILE 'REGISTRY' ENTERED AT 16:46:57 ON 03 SEP 2003

E ASPARTYL?

E ASPARTYLPHENYL?

L1 17 S E6

INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, AQUASCI, BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CANCERLIT, CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DRUGB, DRUGLAUNCH, DRUGMONOG2, ...' ENTERED AT 17:00:47 ON 03 SEP 2003

SEA (13433-09-5 OR ASPARTYLPHENYL?) AND (SYNTHETAS? OR SYNTHAS?)

2 FILE CAPLUS

1 FILE DDFB

1 FILE DRUGB

L2 QUE (13433-09-5 OR ASPARTYLPHENYL?) AND (SYNTHETAS? OR SYNTHAS?)

SEA (DIPEPTID? OR PEPTID?) (S) (SYNTHETAS? OR SYNTHAS?)

13 FILE ADISCTI

11 FILE ADISINSIGHT

3 FILE ADISNEWS

331 FILE AGRICOLA

12 FILE ANABSTR

54 FILE AQUASCI

49 FILE BIOBUSINESS

15 FILE BIOCOMMERCE

4116 FILE BIOSIS

505 FILE BIOTECHABS

505 FILE BIOTECHDS

1865 FILE BIOTECHNO

571 FILE CABA

606 FILE CANCERLIT

2949 FILE CAPLUS

52 FILE CEABA-VTB

4 FILE CEN

7 FILE CIN

30 FILE CONFSCI

14 FILE CROPB

14 FILE CROPU

44 FILE DDFB

151 FILE DDFU

4682 FILE DGENE

44 FILE DRUGB

4 FILE DRUGNL

231 FILE DRUGU

5 FILE DRUGUPDATES

62 FILE EMBAL

3252 FILE EMBASE

2198 FILE ESBIODASE

245* FILE FEDRIP

16 FILE FROSTI

58 FILE FSTA

1265 FILE GENBANK

233 FILE IFIPAT

380 FILE JICST-EPLUS

3 FILE KOSMET

1503 FILE LIFESCI

3019 FILE MEDLINE

2 FILE NIOSHTIC

17 FILE NTIS

6 FILE OCEAN

1247 FILE PASCAL

3 FILE PHAR

1 FILE PHIC

12 FILE PHIN
 34 FILE PROMT
 3218 FILE SCISEARCH
 1 FILE SYNTHLINE
 1027 FILE TOXCENTER
 2134 FILE USPATFULL
 56 FILE USPAT2
 5 FILE VETU
 361 FILE WPIDS
 361 FILE WPINDEX
 7 FILE IPA
 6 FILE NAPRALERT
 37 FILE NLDB
 L3 QUE (DIPEPTID? OR PEPTID?) (S) (SYNTHETAS? OR SYNTHAS?)

 SEA (DIPEPTID? OR PEPTID?) (S) (SYNTHETAS? OR SYNTHAS?) AND (AS

 1 FILE ADISCTI
 1 FILE ADISINSIGHT
 13 FILE AGRICOLA
 3 FILE AQUASCI
 10 FILE BIOBUSINESS
 219 FILE BIOSIS
 41 FILE BIOTECHABS
 41 FILE BIOTECHDS
 113 FILE BIOTECHNO
 18 FILE CABA
 19 FILE CANCERLIT
 214 FILE CAPLUS
 2 FILE CEABA-VTB
 1 FILE CEN
 1 FILE CIN
 1 FILE CONFSCI
 1 FILE CROPB
 1 FILE CROPU
 3 FILE DDFB
 3 FILE DDFU
 65 FILE DGENE
 3 FILE DRUGB
 11 FILE DRUGU
 3 FILE EMBAL
 206 FILE EMBASE
 86 FILE ESBIODBASE
 11* FILE FEDRIP
 1 FILE FROSTI
 4 FILE FSTA
 437 FILE GENBANK
 34 FILE IFIPAT
 13 FILE JICST-EPLUS
 102 FILE LIFESCI
 171 FILE MEDLINE
 1 FILE NTIS
 47 FILE PASCAL
 1 FILE PHIN
 1 FILE PROMT
 150 FILE SCISEARCH
 64 FILE TOXCENTER
 1132 FILE USPATFULL
 36 FILE USPAT2
 27 FILE WPIDS
 27 FILE WPINDEX
 1 FILE NLDB
 L4 QUE (DIPEPTID? OR PEPTID?) (S) (SYNTHETAS? OR SYNTHAS?) AND (AS

 FILE 'USPATFULL, GENBANK, BIOSIS, CAPLUS, EMBASE, MEDLINE, SCISEARCH,
 BIOTECHNO, LIFESCI, ESBIODBASE, DGENE, WPIDS, DRUGB' ENTERED AT 17:08:19
 ON 03 SEP 2003
 L5 2925 S (DIPEPTID? OR PEPTID?) (S) (SYNTHETAS? OR SYNTHAS?) AND (ASPA

L6 3 S (13433-09-5 OR ASPARTYLPHENYL?) AND (SYNTHETAS? OR SYNTHAS?)
L7 1223 S L5 AND RIBOSOM?
L8 512 S L7 AND ADENYL?
L9 223 S L8 AND THIOL?
L10 75 S L9 AND THIOESTERAS?
L11 74 DUP REM L10 (1 DUPLICATE REMOVED)

Welcome to STN International! Enter x:x

LOGINID:ssspta1652dmr

PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * Welcome to STN International * * * * *

| | | | |
|--------------|----|--------|--|
| NEWS | 1 | | Web Page URLs for STN Seminar Schedule - N. America |
| NEWS | 2 | | "Ask CAS" for self-help around the clock |
| NEWS | 3 | Feb 24 | PCTGEN now available on STN |
| NEWS | 4 | Feb 24 | TEMA now available on STN |
| NEWS | 5 | Feb 26 | NTIS now allows simultaneous left and right truncation |
| NEWS | 6 | Feb 26 | PCTFULL now contains images |
| NEWS | 7 | Mar 04 | SDI PACKAGE for monthly delivery of multifile SDI results |
| NEWS | 8 | Mar 24 | PATDPAFULL now available on STN |
| NEWS | 9 | Mar 24 | Additional information for trade-named substances without structures available in REGISTRY |
| NEWS | 10 | Apr 11 | Display formats in DGENE enhanced |
| NEWS | 11 | Apr 14 | MEDLINE Reload |
| NEWS | 12 | Apr 17 | Polymer searching in REGISTRY enhanced |
| NEWS | 13 | AUG 22 | Indexing from 1927 to 1936 added to records in CA/CAPLUS |
| NEWS | 14 | Apr 21 | New current-awareness alert (SDI) frequency in WPIDS/WPINDEX/WPIX |
| NEWS | 15 | Apr 28 | RDISCLOSURE now available on STN |
| NEWS | 16 | May 05 | Pharmacokinetic information and systematic chemical names added to PHAR |
| NEWS | 17 | May 15 | MEDLINE file segment of TOXCENTER reloaded |
| NEWS | 18 | May 15 | Supporter information for ENCOMPAT and ENCOMPLIT updated |
| NEWS | 19 | May 19 | Simultaneous left and right truncation added to WSCA |
| NEWS | 20 | May 19 | RAPRA enhanced with new search field, simultaneous left and right truncation |
| NEWS | 21 | Jun 06 | Simultaneous left and right truncation added to CBNB |
| NEWS | 22 | Jun 06 | PASCAL enhanced with additional data |
| NEWS | 23 | Jun 20 | 2003 edition of the FSTA Thesaurus is now available |
| NEWS | 24 | Jun 25 | HSDB has been reloaded |
| NEWS | 25 | Jul 16 | Data from 1960-1976 added to RDISCLOSURE |
| NEWS | 26 | Jul 21 | Identification of STN records implemented |
| NEWS | 27 | Jul 21 | Polymer class term count added to REGISTRY |
| NEWS | 28 | Jul 22 | INPADOC: Basic index (/BI) enhanced; Simultaneous Left and Right Truncation available |
| NEWS | 29 | AUG 05 | New pricing for EUROPATFULL and PCTFULL effective August 1, 2003 |
| NEWS | 30 | AUG 13 | Field Availability (/FA) field enhanced in BEILSTEIN |
| NEWS | 31 | AUG 15 | PATDPAFULL: one FREE connect hour, per account, in September 2003 |
| NEWS | 32 | AUG 15 | PCTGEN: one FREE connect hour, per account, in September 2003 |
| NEWS | 33 | AUG 15 | RDISCLOSURE: one FREE connect hour, per account, in September 2003 |
| NEWS | 34 | AUG 15 | TEMA: one FREE connect hour, per account, in September 2003 |
| NEWS | 35 | AUG 18 | Data available for download as a PDF in RDISCLOSURE |
| NEWS | 36 | AUG 18 | Simultaneous left and right truncation added to PASCAL |
| NEWS | 37 | AUG 18 | FROSTI and KOSMET enhanced with Simultaneous Left and Right Truncation |
| NEWS | 38 | AUG 18 | Simultaneous left and right truncation added to ANABSTR |
| NEWS EXPRESS | | | April 4 CURRENT WINDOWS VERSION IS V6.01a, CURRENT MACINTOSH VERSION IS V6.0b(ENG) AND V6.0Jb(JP), |

AND CURRENT DISCOVER FILE IS DATED 01 APRIL 2003

| | |
|------------|---|
| NEWS HOURS | STN Operating Hours Plus Help Desk Availability |
| NEWS INTER | General Internet Information |
| NEWS LOGIN | Welcome Banner and News Items |
| NEWS PHONE | Direct Dial and Telecommunication Network Access to STN |
| NEWS WWW | CAS World Wide Web Site (general information) |

Enter NEWS followed by the item number or name to see news on that specific topic.

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* * * * * STN Columbus * * * * *

FILE 'HOME' ENTERED AT 16:46:30 ON 03 SEP 2003

=> file registry
COST IN U.S. DOLLARS

| SINCE FILE ENTRY | TOTAL SESSION |
|---------------------|------------------|
| 0.21 | 0.21 |

FULL ESTIMATED COST

FILE 'REGISTRY' ENTERED AT 16:46:57 ON 03 SEP 2003
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2003 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 1 SEP 2003 HIGHEST RN 577691-42-0
DICTIONARY FILE UPDATES: 1 SEP 2003 HIGHEST RN 577691-42-0

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 6, 2003

Please note that search-term pricing does apply when conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP PROPERTIES for more information. See STNote 27, Searching Properties in the CAS Registry File, for complete details:
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

=> e aspartyl?

| | | |
|-----|-------|----------------------------------|
| E1 | 1 | ASPARTYL1/BI |
| E2 | 1 | ASPARTYL3/BI |
| E3 | 0 --> | ASPARTYL?/BI |
| E4 | 1 | ASPARTYLACETYL/BI |
| E5 | 1 | ASPARTYLACETYLGLUCOS/BI |
| E6 | 1 | ASPARTYLACETYLGLUCOSAMINID/BI |
| E7 | 1 | ASPARTYLACETYLGLUCOSAMINIDASE/BI |
| E8 | 1 | ASPARTYLADENYL/BI |
| E9 | 1 | ASPARTYLADENYLATE/BI |
| E10 | 2 | ASPARTYLADENYLIC/BI |
| E11 | 14 | ASPARTYLALAN/BI |
| E12 | 4 | ASPARTYLALANINE/BI |

=> e aspartylphenyl?

| | | |
|----|-----|--------------------|
| E1 | 29 | ASPARTYLPEPTIDE/BI |
| E2 | 338 | ASPARTYLPHENYL/BI |

E3 0 --> ASPARTYLPHENYL?/BI
 E4 12 ASPARTYLPHENYLALAN/BI
 E5 1 ASPARTYLPHENYLALANATE/BI
 E6 17 ASPARTYLPHENYLALANINE/BI
 E7 11 ASPARTYLPHENYLALANYL/BI
 E8 1 ASPARTYLPHENYLALANYLGLUT/BI
 E9 1 ASPARTYLPHENYLALANYLGLUTAMIN/BI
 E10 1 ASPARTYLPHENYLALANYLGLUTAMINYL/BI
 E11 1 ASPARTYLPHENYLALANYLGLUTAMINYLASPART/BI
 E12 1 ASPARTYLPHENYLALANYLGLUTAMINYLASPARTYL/BI

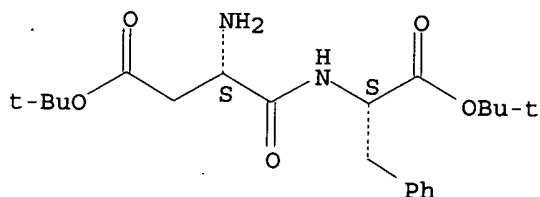
=> s e6

L1 17 ASPARTYLPHENYLALANINE/BI

=> d 1-17 11

L1 ANSWER 1 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN
 RN 131668-89-8 REGISTRY
 CN L-Phenylalanine, L-.alpha.-aspartyl-, bis(1,1-dimethylethyl) ester (9CI)
 (CA INDEX NAME)
 OTHER CA INDEX NAMES:
 CN L-Phenylalanine, N-L-.alpha.-aspartyl-, bis(1,1-dimethylethyl) ester
 OTHER NAMES:
 CN **Aspartylphenylalanine di-tert-butyl ester**
 FS STEREOSEARCH
 MF C21 H32 N2 O5
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT, TOXCENTER, USPATFULL

Absolute stereochemistry.

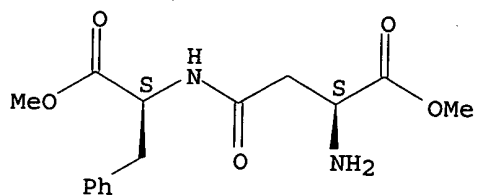


****PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT****

9 REFERENCES IN FILE CA (1937 TO DATE)
 9 REFERENCES IN FILE CAPLUS (1937 TO DATE)

L1 ANSWER 2 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN
 RN 121457-40-7 REGISTRY
 CN L-Phenylalanine, N-L-.beta.-aspartyl-, dimethyl ester (9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN **.beta.-Aspartylphenylalanine dimethyl ester**
 FS STEREOSEARCH
 MF C15 H20 N2 O5
 CI COM
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT, USPATFULL

Absolute stereochemistry.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

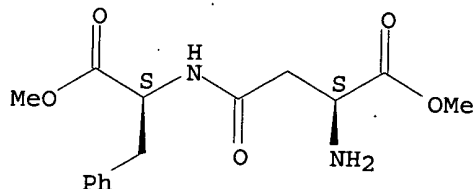
3 REFERENCES IN FILE CA (1937 TO DATE)
3 REFERENCES IN FILE CAPLUS (1937 TO DATE)

L1 ANSWER 3 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN
RN 108274-50-6 REGISTRY
CN L-Phenylalanine, N-L-.beta.-aspartyl-, dimethyl ester, monohydrochloride
(9CI) (CA INDEX NAME)

OTHER NAMES:

CN **.beta.-Aspartylphenylalanine dimethyl ester hydrochloride**
FS STEREOSEARCH
MF C15 H20 N2 O5 . Cl H
SR CA
LC STN Files: CA, CAPLUS, USPATFULL
CRN (121457-40-7)

Absolute stereochemistry.



● HCl

3 REFERENCES IN FILE CA (1937 TO DATE)
3 REFERENCES IN FILE CAPLUS (1937 TO DATE)

L1 ANSWER 4 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN
RN 105503-62-6 REGISTRY
CN **Dipeptidase, aspartylphenylalanine (9CI)** (CA INDEX NAME)

OTHER NAMES:

CN Asp-Phe hydrolase
CN **Aspartylphenylalanine dipeptidase**
CN L-Aspartyl-L-phenylalanine hydrolase
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

2 REFERENCES IN FILE CA (1937 TO DATE)
2 REFERENCES IN FILE CAPLUS (1937 TO DATE)

L1 ANSWER 5 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN
RN 85412-56-2 REGISTRY
CN L-Phenylalanine, L-.alpha.-aspartyl-, dimethyl ester (9CI) (CA INDEX

NAME)

OTHER CA INDEX NAMES:

CN L-Phenylalanine, N-L-.alpha.-aspartyl-, dimethyl ester

OTHER NAMES:

CN .alpha.-Aspartylphenylalanine dimethyl ester

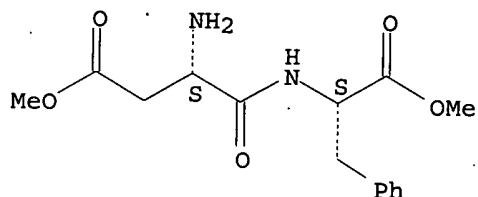
FS STEREOSEARCH

MF C15 H20 N2 O5

CI COM

LC STN Files: CA, CAPLUS, CASREACT, TOXCENTER, USPATFULL

Absolute stereochemistry.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

19 REFERENCES IN FILE CA (1937 TO DATE)

19 REFERENCES IN FILE CAPLUS (1937 TO DATE)

L1 ANSWER 6 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN

RN 75214-12-9 REGISTRY

CN L-Phenylalanine, N-L-.alpha.-aspartyl-, dimethyl ester, monohydrochloride (9CI) (CA INDEX NAME)

OTHER NAMES:

CN .alpha.-Aspartylphenylalanine dimethyl ester hydrochloride

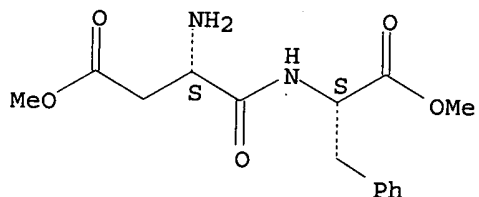
FS STEREOSEARCH

MF C15 H20 N2 O5 . Cl H

LC STN Files: CA, CAPLUS, CASREACT, CHEMCATS, CSCHEM, TOXCENTER, USPATFULL

CRN (85412-56-2)

Absolute stereochemistry.



● HCl

4 REFERENCES IN FILE CA (1937 TO DATE)

4 REFERENCES IN FILE CAPLUS (1937 TO DATE)

L1 ANSWER 7 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN

RN 75214-10-7 REGISTRY

CN L-Phenylalanine, N-L-.alpha.-aspartyl-, monohydrochloride (9CI) (CA INDEX NAME)

OTHER NAMES:

CN Aspartylphenylalanine hydrochloride

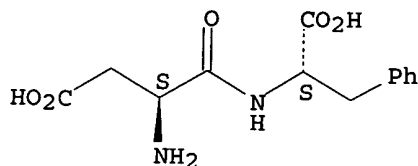
FS STEREOSEARCH

MF C13 H16 N2 O5 . Cl H

LC STN Files: CA, CAPLUS, CASREACT, TOXCENTER, USPATFULL

CRN (13433-09-5)

Absolute stereochemistry.

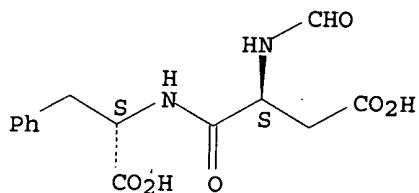


● HCl

3 REFERENCES IN FILE CA (1937 TO DATE)
3 REFERENCES IN FILE CAPLUS (1937 TO DATE)

L1 ANSWER 8 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN
RN 56633-51-3 REGISTRY
CN L-Phenylalanine, N-formyl-L-.alpha.-aspartyl- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN L-Phenylalanine, N-(N-formyl-L-.alpha.-aspartyl)-
OTHER NAMES:
CN **N-Formyl-.alpha.-aspartylphenylalanine**
CN N-Formyl-.alpha.-L-aspartyl-L-phenylalanine
FS STEREOSEARCH
MF C14 H16 N2 O6
LC STN Files: CA, CAPLUS, CASREACT, CHEMLIST, IFICDB, IFIPAT, IFIUDB, USPATFULL
Other Sources: EINECS**
(**Enter CHEMLIST File for up-to-date regulatory information)

Absolute stereochemistry.

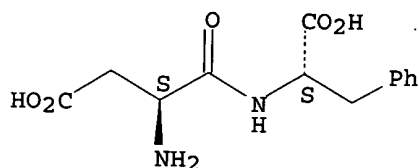


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

31 REFERENCES IN FILE CA (1937 TO DATE)
1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
31 REFERENCES IN FILE CAPLUS (1937 TO DATE)

L1 ANSWER 9 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN
RN 52432-86-7 REGISTRY
CN L-Phenylalanine, N-L-.alpha.-aspartyl-, monosodium salt (9CI) (CA INDEX NAME)
OTHER NAMES:
CN **Sodium aspartylphenylalanine**
FS STEREOSEARCH
MF C13 H16 N2 O5 . Na
LC STN Files: CA, CAPLUS
CRN (13433-09-5)

Absolute stereochemistry.

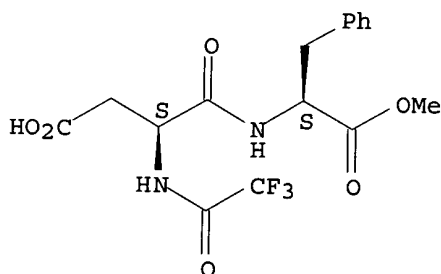


● Na

1 REFERENCES IN FILE CA (1937 TO DATE)
1 REFERENCES IN FILE CAPLUS (1937 TO DATE)

L1 ANSWER 10 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN
RN 41567-20-8 REGISTRY
CN L-Phenylalanine, N-(trifluoroacetyl)-L-.alpha.-aspartyl-, 2-methyl ester
(9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN L-Phenylalanine, N-[N-(trifluoroacetyl)-L-.alpha.-aspartyl]-, 1-methyl
ester
OTHER NAMES:
CN **N-Trifluoroacetyl-.alpha.-aspartylphenylalanine methyl ester**
CN N-Trifluoroacetyl-.alpha.-L-aspartyl-L-phenylalanine methyl ester
CN N-Trifluoroacetyl-L-aspartyl-L-phenylalanine methyl ester
FS STEREOSEARCH
DR 51127-00-5
MF C16 H17 F3 N2 O6
CI COM
LC STN Files: BEILSTEIN*, CA, CAPLUS, IFICDB, IFIPAT, IFIUDB, USPATFULL
(*File contains numerically searchable property data)

Absolute stereochemistry.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

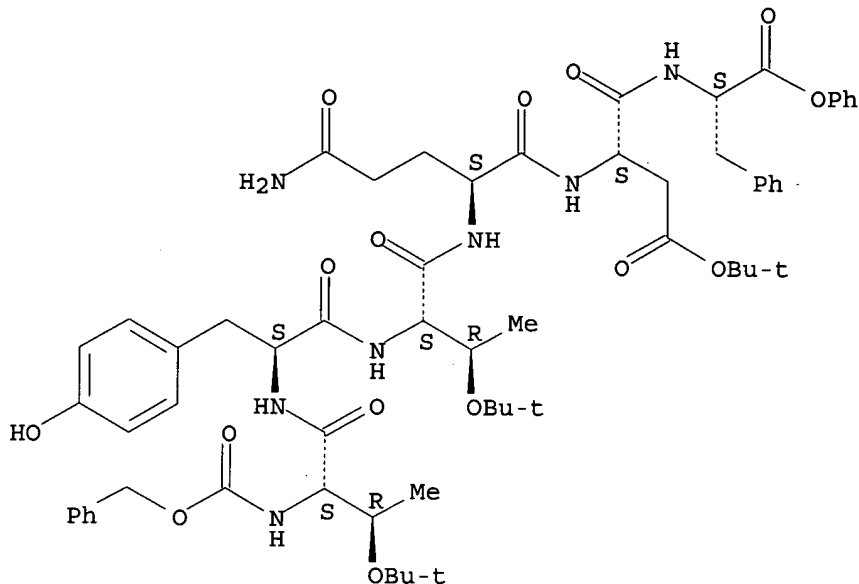
13 REFERENCES IN FILE CA (1937 TO DATE)
13 REFERENCES IN FILE CAPLUS (1937 TO DATE)

L1 ANSWER 11 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN
RN 37784-03-5 REGISTRY
CN L-Phenylalanine, N-[N-[N2-[O-(1,1-dimethylethyl)-N-[N-[O-(1,1-dimethylethyl)-N-[(phenylmethoxy)carbonyl]-L-threonyl]-L-tyrosyl]-L-threonyl]-L-glutaminy]-L-.alpha.-aspartyl]-, 4-(1,1-dimethylethyl)
1-phenyl ester (9CI) (CA INDEX NAME)
OTHER NAMES:
CN **N-Benzoyloxycarbonyl-O-tert-butyl-L-threonyl-L-tyrosyl-O-tert-butyl-L-threonyl-L-glutaminy-L-.beta.-tert-butyl-L-aspartylphenylalanine phenyl ester**
FS PROTEIN SEQUENCE; STEREOSEARCH
MF C61 H81 N7 O15

LC STN Files: CA, CAPLUS

RELATED SEQUENCES AVAILABLE WITH SEQLINK

Absolute stereochemistry.



1 REFERENCES IN FILE CA (1937 TO DATE)

1 REFERENCES IN FILE CAPLUS (1937 TO DATE)

L1 ANSWER 12 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN

RN 33605-76-4 REGISTRY

CN L-Phenylalanine, N-formyl-L-.alpha.-aspartyl-, 2-methyl ester (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN L-Phenylalanine, N-(N-formyl-L-.alpha.-aspartyl)-, 1-methyl ester

CN Succinamic acid, N-(.alpha.-carboxyphenethyl)-3-formamido-, monomethyl ester, stereoisomer (8CI)

OTHER NAMES:

CN Formylaspartame

CN **N-Formyl-.alpha.-aspartylphenylalanine methyl ester**

CN N-Formyl-.alpha.-L-aspartyl-L-phenylalanine methyl ester

CN N-Formyl-L-aspartyl-L-phenylalanine methyl ester

CN N-Formylaspartam

FS STEREOSEARCH

MF C15 H18 N2 O6

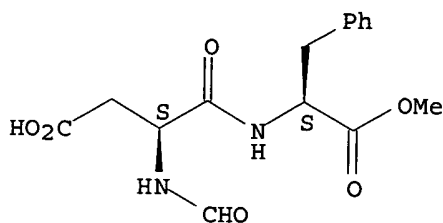
CI COM

LC STN Files: BEILSTEIN*, BIOSIS, CA, CAPLUS, CASREACT, CHEMCATS, CHEMLIST, CSChem, IFICDB, IFIPAT, IFIUDb, IPA, TOXCENTER, USPATFULL
(*File contains numerically searchable property data)

Other Sources: EINECS**

(**Enter CHEMLIST File for up-to-date regulatory information)

Absolute stereochemistry. Rotation (-).



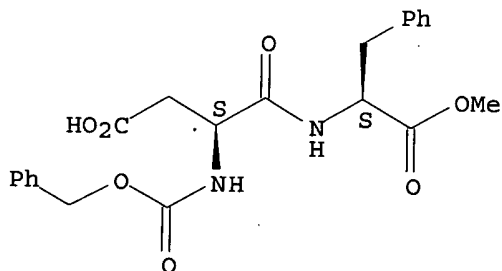
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

69 REFERENCES IN FILE CA (1937 TO DATE)

69 REFERENCES IN FILE CAPLUS (1937 TO DATE)

L1 ANSWER 13 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN
 RN 33605-72-0 REGISTRY
 CN L-Phenylalanine, N-[(phenylmethoxy)carbonyl]-L-.alpha.-aspartyl-, 2-methyl ester (9CI) (CA INDEX NAME)
 OTHER CA INDEX NAMES:
 CN L-Phenylalanine, N-[N-[(phenylmethoxy)carbonyl]-L-.alpha.-aspartyl]-, 1-methyl ester
 CN Succinamic acid, 3-(carboxyamino)-N-(.alpha.-carboxyphenethyl)-, 3-benzyl monomethyl ester, stereoisomer (8CI)
 OTHER NAMES:
 CN (Carbobenzyloxy)-.alpha.-L-aspartyl-L-phenylalanine methyl ester
 CN **N-(Benzyloxycarbonyl)-.alpha.-aspartylphenylalanine methyl ester**
 CN N-(Benzyloxycarbonyl)-.alpha.-L-aspartyl-L-phenylalanine methyl ester
 CN N-(Benzyloxycarbonyl)-L-aspartyl-L-phenylalanine methyl ester
 CN N-(Benzyloxycarbonyl)aspartame
 FS STEREOSEARCH
 MF C22 H24 N2 O7
 CI COM
 LC STN Files: BEILSTEIN*, BIOBUSINESS, BIOSIS, CA, CAPLUS, CASREACT, CHEMCATS, CHEMINFORMRX, CHEMLIST, DETHERM*, IFICDB, IFIPAT, IFIUDB, MEDLINE, PROMT, TOXCENTER, USPATFULL
 (*File contains numerically searchable property data)
 Other Sources: EINECS**
 (**Enter CHEMLIST File for up-to-date regulatory information)

Absolute stereochemistry. Rotation (-).



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

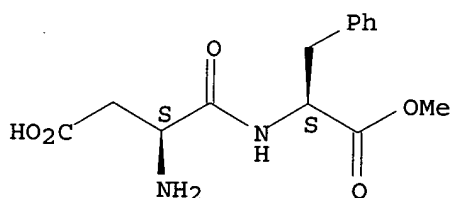
195 REFERENCES IN FILE CA (1937 TO DATE)

1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

196 REFERENCES IN FILE CAPLUS (1937 TO DATE)

L1 ANSWER 14 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN
 RN 22839-47-0 REGISTRY
 CN L-Phenylalanine, L-.alpha.-aspartyl-, 2-methyl ester (9CI) (CA INDEX NAME)
 OTHER CA INDEX NAMES:
 CN L-Phenylalanine, N-L-.alpha.-aspartyl-, 1-methyl ester
 CN Succinamic acid, 3-amino-N-(.alpha.-carboxyphenethyl)-, N-methyl ester, stereoisomer (8CI)
 OTHER NAMES:
 CN .alpha.-L-Aspartyl-L-phenylalanine methyl ester
 CN .alpha.-Sweet
 CN Aspartame
 CN **Aspartylphenylalanine methyl ester**
 CN Canderel
 CN Dipeptide sweetener
 CN E 951
 CN L-.alpha.-Aspartyl-L-phenylalanine methyl ester
 CN L-Aspartyl-L-3-phenylalanine methyl ester
 CN L-Aspartyl-L-phenylalanine methyl ester
 CN L-Aspartyl-L-phenylalanyl methyl ester
 CN Methyl aspartylphenylalanate
 CN NutraSweet
 CN Pal Sweet
 CN Palsweet Diet
 CN Sweet dipeptide
 FS STEREOSEARCH
 DR 7421-84-3, 172964-81-7, 53906-69-7
 MF C14 H18 N2 O5
 CI COM
 LC STN Files: ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHM, CSNB, DDFU, DIOGENES, DRUGU, EMBASE, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PHARMASEARCH, PIRA, PROMT, RTECS*, TOXCENTER, USAN, USPAT2, USPATFULL
 (*File contains numerically searchable property data)
 Other Sources: DSL**, EINECS**, TSCA**, WHO
 (**Enter CHEMLIST File for up-to-date regulatory information)

Absolute stereochemistry.



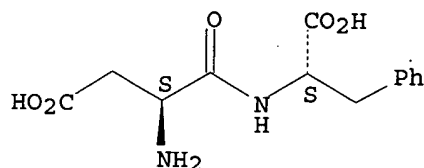
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

2499 REFERENCES IN FILE CA (1937 TO DATE)
 71 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 2502 REFERENCES IN FILE CAPLUS (1937 TO DATE)

L1 ANSWER 15 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN
 RN 13433-09-5 REGISTRY
 CN L-Phenylalanine, L-.alpha.-aspartyl- (9CI) (CA INDEX NAME)
 OTHER CA INDEX NAMES:
 CN L-Phenylalanine, N-L-.alpha.-aspartyl-
 CN Succinamic acid, 3-amino-N-(.alpha.-carboxyphenethyl)-, stereoisomer (8CI)
 OTHER NAMES:
 CN **.alpha.-Aspartylphenylalanine**

CN .alpha.-L-Aspartyl-L-phenylalanine
 CN Demethylaspartame
 CN L-.alpha.-Aspartyl-L-phenylalanine
 CN L-Aspartyl-L-phenylalanine
 FS STEREOSEARCH
 DR 5694-30-4
 MF C13 H16 N2 O5
 CI COM
 LC STN Files: AGRICOLA, ANABSTR, BEILSTEIN*, BIOBUSINESS, BIOSIS, CA,
 CAOLD, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMLIST, CSCHEM, IFICDB,
 IFIPAT, IFIUDB, IPA, MEDLINE, PROMT, TOXCENTER, USPAT2, USPATFULL
 (*File contains numerically searchable property data)
 Other Sources: EINECS**
 (**Enter CHEMLIST File for up-to-date regulatory information)

Absolute stereochemistry.

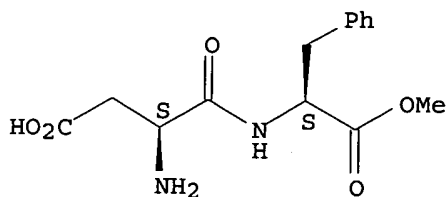


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

197 REFERENCES IN FILE CA (1937 TO DATE)
 25 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 197 REFERENCES IN FILE CAPLUS (1937 TO DATE)
 1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L1 ANSWER 16 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN
 RN 5910-52-1 REGISTRY
 CN L-Phenylalanine, L-.alpha.-aspartyl-, 2-methyl ester, monohydrochloride
 (9CI) (CA INDEX NAME)
 OTHER CA INDEX NAMES:
 CN L-Phenylalanine, N-L-.alpha.-aspartyl-, 1-methyl ester, monohydrochloride
 CN Succinamic acid, 3-amino-N-(.alpha.-carboxyphenethyl)-, .alpha.-methyl
 ester, monohydrochloride (8CI)
 CN Succinamic acid, 3-amino-N-(.alpha.-carboxyphenethyl)-, 1-methyl ester,
 hydrochloride (7CI)
 OTHER NAMES:
 CN .alpha.-Aspartame hydrochloride
 CN **.alpha.-Aspartylphenylalanine methyl ester hydrochloride**
 CN .alpha.-L-Aspartyl-L-phenylalanine methyl ester hydrochloride
 CN Aspartam hydrochloride
 CN Aspartame hydrochloride
 CN L-.alpha.-Aspartyl-L-phenylalanine methyl ester monohydrochloride
 CN L-Aspartyl-L-phenylalanine methyl ester hydrochloride
 CN Methyl .alpha.-L-aspartyl-L-phenylalaninate hydrochloride
 CN Usal
 CN Usal (dipeptide)
 FS STEREOSEARCH
 MF C14 H18 N2 O5 . Cl H
 LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BEILSTEIN*, BIOBUSINESS, BIOSIS,
 BIOTECHNO, CA, CAOLD, CAPLUS, CASREACT, CHEMLIST, EMBASE, IFICDB,
 IFIPAT, IFIUDB, IPA, PROMT, TOXCENTER, USPATFULL
 (*File contains numerically searchable property data)
 Other Sources: EINECS**
 (**Enter CHEMLIST File for up-to-date regulatory information)
 CRN (22839-47-0)

Absolute stereochemistry.



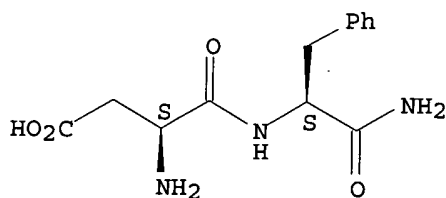
● HCl

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

92 REFERENCES IN FILE CA (1937 TO DATE)
 1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 92 REFERENCES IN FILE CAPLUS (1937 TO DATE)
 1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L1 ANSWER 17 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN
 RN 5241-71-4 REGISTRY
 CN L-Phenylalaninamide, L-.alpha.-aspartyl- (9CI) (CA INDEX NAME)
 OTHER CA INDEX NAMES:
 CN Alaninamide, L-.alpha.-aspartylphenyl-, L- (8CI)
 CN Succinamic acid, 3-amino-N-(.alpha.-carbamoylphenethyl)- (8CI)
 OTHER NAMES:
 CN **Aspartylphenylalanine amide**
 CN Cholecystokinin 32-33
 CN L-Aspartyl-L-phenylalaninamide
 FS STEREOSEARCH
 MF C13 H17 N3 O4
 CI COM
 LC STN Files: BEILSTEIN*, BIOSIS, CA, CAOLD, CAPLUS, CASREACT, CHEMCATS, CSICHEM, IFICDB, IFIPAT, IFIUDB, TOXCENTER, USPAT2, USPATFULL
 (*File contains numerically searchable property data)

Absolute stereochemistry.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

87 REFERENCES IN FILE CA (1937 TO DATE)
 2 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 87 REFERENCES IN FILE CAPLUS (1937 TO DATE)
 3 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> index bioscience medicine

FILE 'DRUGMONOG' ACCESS NOT AUTHORIZED

COST IN U.S. DOLLARS

FULL ESTIMATED COST

| SINCE FILE | TOTAL |
|------------|---------|
| ENTRY | SESSION |
| 41.98 | 42.19 |

INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, AQUASCI, BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CANCERLIT, CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DRUGB, DRUGLAUNCH, DRUGMONOG2, ...' ENTERED AT 17:00:47 ON 03 SEP 2003

70 FILES IN THE FILE LIST IN STNINDEX

Enter SET DETAIL ON to see search term postings or to view search error messages that display as 0* with SET DETAIL OFF.

=> sel l1<chem>

L1<CHEM> IS NOT A VALID L-NUMBER

The L-number entered is not in the range of valid L-numbers.

=> s (13433-09-5 or aspartylphenyl?) and (synthetas? or synthas?)

2 FILE CAPLUS

1 FILE DDFB

1 FILE DRUGB

39 FILES SEARCHED...

3 FILES HAVE ONE OR MORE ANSWERS, 70 FILES SEARCHED IN STNINDEX

L2 QUE (13433-09-5 OR ASPARTYLPHENYL?) AND (SYNTHETAS? OR SYNTHAS?)

=> d rank

F1 2 CAPLUS

F2 1 DDFB

F3 1 DRUGB

=> s (dipeptid? or peptid?) (s) (synthetas? or synthas?)

13 FILE ADISCTI

11 FILE ADISINSIGHT

3 FILE ADISNEWS

331 FILE AGRICOLA

12 FILE ANABSTR

54 FILE AQUASCI

49 FILE BIOBUSINESS

15 FILE BIOCOMMERCE

4116 FILE BIOSIS

505 FILE BIOTECHABS

505 FILE BIOTECHDS

1865 FILE BIOTECHNO

571 FILE CABA

606 FILE CANCERLIT

2949 FILE CAPLUS

52 FILE CEABA-VTB

4 FILE CEN

7 FILE CIN

30 FILE CONFSCI

14 FILE CROPB

14 FILE CROPU

44 FILE DDFB

151 FILE DDFU

4682 FILE DGENE

24 FILES SEARCHED...

44 FILE DRUGB

4 FILE DRUGNL

231 FILE DRUGU

5 FILE DRUGUPDATES

62 FILE EMBAL

3252 FILE EMBASE

2198 FILE ESBIODASE

245* FILE FEDRIP

16 FILE FROSTI

58 FILE FSTA
 1265 FILE GENBANK
 233 FILE IFIPAT
 380 FILE JICST-EPLUS
 3 FILE KOSMET
 1503 FILE LIFESCI
 3019 FILE MEDLINE
 2 FILE NIOSHTIC
 17 FILE NTIS
 6 FILE OCEAN
 1247 FILE PASCAL

51 FILES SEARCHED...

3 FILE PHAR
 1 FILE PHIC
 12 FILE PHIN
 34 FILE PROMT
 3218 FILE SCISEARCH
 1 FILE SYNTHLINE
 1027 FILE TOXCENTER
 2134 FILE USPATFULL
 56 FILE USPAT2
 5 FILE VETU
 361 FILE WPIDS
 361 FILE WPINDEX
 7 FILE IPA
 6 FILE NAPRALERT
 37 FILE NLDB

59 FILES HAVE ONE OR MORE ANSWERS, 70 FILES SEARCHED IN STNINDEX

L3 QUE (DIPEPTID? OR PEPTID?) (S) (SYNTHETAS? OR SYNTHAS?)

=> d rank

| | | |
|-----|------|-------------|
| F1 | 4682 | DGENE |
| F2 | 4116 | BIOSIS |
| F3 | 3252 | EMBASE |
| F4 | 3218 | SCISEARCH |
| F5 | 3019 | MEDLINE |
| F6 | 2949 | CAPLUS |
| F7 | 2198 | ESBIOBASE |
| F8 | 2134 | USPATFULL |
| F9 | 1865 | BIOTECHNO |
| F10 | 1503 | LIFESCI |
| F11 | 1265 | GENBANK |
| F12 | 1247 | PASCAL |
| F13 | 1027 | TOXCENTER |
| F14 | 606 | CANCERLIT |
| F15 | 571 | CABA |
| F16 | 505 | BIOTECHABS |
| F17 | 505 | BIOTECHDS |
| F18 | 380 | JICST-EPLUS |
| F19 | 361 | WPIDS |
| F20 | 361 | WPINDEX |
| F21 | 331 | AGRICOLA |
| F22 | 245* | FEDRIP |
| F23 | 233 | IFIPAT |
| F24 | 231 | DRUGU |
| F25 | 151 | DDFU |
| F26 | 62 | EMBAL |
| F27 | 58 | FSTA |
| F28 | 56 | USPAT2 |
| F29 | 54 | AQUASCI |
| F30 | 52 | CEABA-VTB |
| F31 | 49 | BIOBUSINESS |
| F32 | 44 | DDFB |

| | | |
|-----|----|-------------|
| F33 | 44 | DRUGB |
| F34 | 37 | NLDB |
| F35 | 34 | PROMT |
| F36 | 30 | CONFSCI |
| F37 | 17 | NTIS |
| F38 | 16 | FROSTI |
| F39 | 15 | BIOCOMMERCE |
| F40 | 14 | CROPB |
| F41 | 14 | CROPU |
| F42 | 13 | ADISCTI |
| F43 | 12 | ANABSTR |
| F44 | 12 | PHIN |
| F45 | 11 | ADISINSIGHT |
| F46 | 7 | CIN |
| F47 | 7 | IPA |
| F48 | 6 | OCEAN |
| F49 | 6 | NAPRALERT |
| F50 | 5 | DRUGUPDATES |
| F51 | 5 | VETU |
| F52 | 4 | CEN |
| F53 | 4 | DRUGNL |
| F54 | 3 | ADISNEWS |
| F55 | 3 | KOSMET |
| F56 | 3 | PHAR |
| F57 | 2 | NIOSHTIC |
| F58 | 1 | PHIC |
| F59 | 1 | SYNTHLINE |

=> s (dipeptid? or peptid?) (s) (synthetas? or synthas?) and (aspart? or phenylal?)

| | |
|----------------------|------------------|
| 1 | FILE ADISCTI |
| 1 | FILE ADISINSIGHT |
| 13 | FILE AGRICOLA |
| 3 | FILE AQUASCI |
| 10 | FILE BIOBUSINESS |
| 219 | FILE BIOSIS |
| 41 | FILE BIOTECHABS |
| 41 | FILE BIOTECHDS |
| 113 | FILE BIOTECHNO |
| 18 | FILE CABA |
| 19 | FILE CANCERLIT |
| 214 | FILE CAPLUS |
| 2 | FILE CEABA-VTB |
| 1 | FILE CEN |
| 1 | FILE CIN |
| 1 | FILE CONFSCI |
| 1 | FILE CROPB |
| 1 | FILE CROPU |
| 3 | FILE DDFB |
| 3 | FILE DDFU |
| 65 | FILE DGENE |
| 24 FILES SEARCHED... | |
| 3 | FILE DRUGB |
| 11 | FILE DRUGU |
| 3 | FILE EMBAL |
| 206 | FILE EMBASE |
| 86 | FILE ESBIODBASE |
| 11* | FILE FEDRIP |
| 1 | FILE FROSTI |
| 4 | FILE FSTA |
| 437 | FILE GENBANK |
| 34 | FILE IFIPAT |
| 13 | FILE JICST-EPLUS |
| 102 | FILE LIFESCI |
| 171 | FILE MEDLINE |

1 FILE NTIS
 47 FILE PASCAL
 51 FILES SEARCHED...
 1 FILE PHIN
 1 FILE PROMT
 150 FILE SCISEARCH
 64 FILE TOXCENTER
 1132 FILE USPATFULL
 36 FILE USPAT2
 27 FILE WPIDS
 27 FILE WPINDEX
 1 FILE NLDB

45 FILES HAVE ONE OR MORE ANSWERS, 70 FILES SEARCHED IN STNINDEX

L4 QUE (DIPEPTID? OR PEPTID?) (S) (SYNTHETAS? OR SYNTHAS?) AND (ASPART? OR PH
ENYLAL?)

=> d rank

| | | |
|-----|------|-------------|
| F1 | 1132 | USPATFULL |
| F2 | 437 | GENBANK |
| F3 | 219 | BIOSIS |
| F4 | 214 | CAPLUS |
| F5 | 206 | EMBASE |
| F6 | 171 | MEDLINE |
| F7 | 150 | SCISEARCH |
| F8 | 113 | BIOTECHNO |
| F9 | 102 | LIFESCI |
| F10 | 86 | ESBIOBASE |
| F11 | 65 | DGENE |
| F12 | 64 | TOXCENTER |
| F13 | 47 | PASCAL |
| F14 | 41 | BIOTECHABS |
| F15 | 41 | BIOTECHDS |
| F16 | 36 | USPAT2 |
| F17 | 34 | IFIPAT |
| F18 | 27 | WPIDS |
| F19 | 27 | WPINDEX |
| F20 | 19 | CANCERLIT |
| F21 | 18 | CABA |
| F22 | 13 | AGRICOLA |
| F23 | 13 | JICST-EPLUS |
| F24 | 11 | DRUGU |
| F25 | 11* | FEDRIP |
| F26 | 10 | BIOBUSINESS |
| F27 | 4 | FSTA |
| F28 | 3 | AQUASCI |
| F29 | 3 | DDFB |
| F30 | 3 | DDFU |
| F31 | 3 | DRUGB |
| F32 | 3 | EMBAL |
| F33 | 2 | CEABA-VTB |
| F34 | 1 | ADISCTI |
| F35 | 1 | ADISINSIGHT |
| F36 | 1 | CEN |
| F37 | 1 | CIN |
| F38 | 1 | CONFSCI |
| F39 | 1 | CROPB |
| F40 | 1 | CROPU |
| F41 | 1 | FROSTI |
| F42 | 1 | NTIS |
| F43 | 1 | PHIN |
| F44 | 1 | PROMT |
| F45 | 1 | NLDB |

=> file f1-f11 f18-19 f29 f31

COST IN U.S. DOLLARS

SINCE FILE

ENTRY

TOTAL

SESSION

FULL ESTIMATED COST

7.15

49.34

FILE 'USPATFULL' ENTERED AT 17:08:19 ON 03 SEP 2003

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FILE 'GENBANK' ENTERED AT 17:08:19 ON 03 SEP 2003

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FILE 'BIOTECHNO' ENTERED AT 17:08:19 ON 03 SEP 2003

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FILE 'WPIDS' ENTERED AT 17:08:19 ON 03 SEP 2003

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FILE 'WPINDEX' ACCESS NOT AUTHORIZED

FILE 'DDFB' ACCESS NOT AUTHORIZED

FILE 'DRUGB' ENTERED AT 17:08:19 ON 03 SEP 2003

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=> s (dipeptid? or peptid?) (s) (synthetas? or synthas?) and (aspart? or phenylal?)

12 FILES SEARCHED...

L5 2925 (DIPEPTID? OR PEPTID?) (S) (SYNTHETAS? OR SYNTHAS?) AND (ASPART?
OR PHENYLAL?)

=> s (13433-09-5 or aspartylphenyl?) and (synthetas? or synthas?)

L6 3 (13433-09-5 OR ASPARTYLPHENYL?) AND (SYNTHETAS? OR SYNTHAS?)

=> d ti l6 1-3

L6 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2003 ACS on STN

TI Microbiological production method for .alpha.-L-aspartyl-L-phenylalanine

L6 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2003 ACS on STN

TI Peptide compounds for prevention and/or treatment of nitric oxide

(NO)-mediated diseases

L6 ANSWER 3 OF 3 DRUGB COPYRIGHT 2003 THOMSON DERWENT on STN
TI ANALOGS OF L-ASPARTIC ACID IN CHEMOTHERAPY FOR CANCER.

=> d ibib abs 16 1-3

L6 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2000:707301 CAPLUS
DOCUMENT NUMBER: 133:280654
TITLE: Microbiological production method for
.alpha.-L-aspartyl-L-phenylalanine
INVENTOR(S): Doekel, Sasha; Marahiel, Mohamed Abdalla; Quaedflieg,
Peter Jan Leonard Mario; Sonke, Theodorus
PATENT ASSIGNEE(S): Holland Sweetener Company V.O.F., Neth.
SOURCE: PCT Int. Appl., 70 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|--|----------|-----------------|------------|
| WO 2000058478 | A1 | 20001005 | WO 2000-NL206 | 20000328 |
| W: | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | |
| RW: | GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | |
| EP 1096011 | A1 | 20010502 | EP 1999-203518 | 19991026 |
| R: | AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO | | | |
| EP 1165799 | A1 | 20020102 | EP 2000-917475 | 20000328 |
| R: | AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO | | | |
| JP 2002539835 | T2 | 20021126 | JP 2000-608758 | 20000328 |
| BR 2000010398 | A | 20021203 | BR 2000-10398 | 20000328 |
| US 2002064834 | A1 | 20020530 | US 2001-966742 | 20011001 |
| PRIORITY APPLN. INFO.: | | | EP 1999-200954 | A 19990329 |
| | | | US 1999-133402P | P 19990510 |
| | | | EP 1999-203518 | A 19991026 |
| | | | WO 2000-NL206 | W 20000328 |

AB The present invention relates to a new, microbiol. method for the prodn. of .alpha.-L-aspartyl-L-phenylalanine (Asp-Phe) from the substrates L-aspartic acid (L-Asp) and L-phenylalanine (L-Phe) wherein the substrates are contacted, in the presence of ATP, with a non-ribosomal dipeptide **synthetase** comprising 2 minimal modules connected by one condensation domain. The N- and C-terminal modules recognize L-Asp and L-Phe, resp., and the latter module is covalently bound at its N-terminal end to the condensation domain; each of these minimal modules is composed of an adenylation domain and a 4'-phosphopantetheinyl cofactor contg. thiolation domain. The present invention also relates to novel DNA fragments or combination of DNA fragments encoding a new Asp-Phe dipeptide **synthetase**, microorganisms contg. such DNA fragments, as well as to the new Asp-Phe dipeptide **synthetase** itself. Thus, Asp-Leu dimodular peptide **synthetase**-encoding DNA was obtained from the *Bacillus subtilis* ATCC 21332 surfactin **synthetase** A gene (srfA-B) by PCR. The Leu minimal domain-encoding DNA was replaced by a DNA from *Bacillus brevis* ATCC 8185 tyrocidine A **synthetase** gene

tycA coding for a Phe minimal module. Then an integral thioesterase domain was added to the C-terminal end of the Asp-Phe encoding DNA by replacement of the thiolation domain of the Phe module by a PCR fragment coding for the SrfA-C thiolation and thioesterase domain. The resulting dipeptide **synthetase**, when expressed by Escherichia coli or Bacillus cells under fermn. conditions, produces Asp-Leu and the desired Asp-Phe, which is a precursor for the artificial sweetener Asp-Phe Me ester.

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1996:494173 CAPLUS

DOCUMENT NUMBER: 125:143330

TITLE: Peptide compounds for prevention and/or treatment of nitric oxide (NO)-mediated diseases

INVENTOR(S): Itoh, Yoshikuni; Iwamoto, Toshiro; Yatabe, Takumi; Hamashima, Hitoshi; Inoue, Takayuki; Hashimoto, Seiji; Oku, Teruo

PATENT ASSIGNEE(S): Fujisawa Pharmaceutical Co., Ltd., Japan

SOURCE: PCT Int. Appl., 739 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

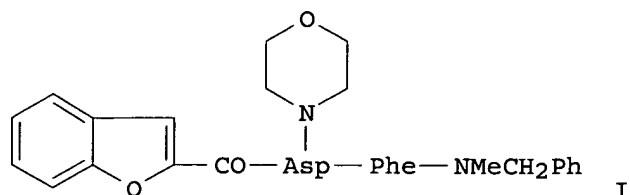
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|--|-----------------|------------|
| WO 9616981 | A2 | 19960606 | WO 1995-JP2428 | 19951129 |
| WO 9616981 | A3 | 19960906 | | |
| W: | | AU, CA, CN, FI, HU, JP, KR, MX, NO, NZ, RU, UA, US | | |
| RW: | | AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG | | |
| AU 9539937 | A1 | 19960619 | AU 1995-39937 | 19951129 |
| EP 796270 | A2 | 19970924 | EP 1995-938602 | 19951129 |
| R: | | AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, NL, PT, SE | | |
| ZA 9510201 | A | 19960625 | ZA 1995-10201 | 19951130 |
| US 5932737 | A | 19990803 | US 1997-849076 | 19970530 |
| PRIORITY APPLN. INFO.: | | | GB 1994-24408 | A 19941202 |
| | | | GB 1995-4891 | A 19950310 |
| | | | GB 1995-10042 | A 19950518 |
| | | | WO 1995-JP2428 | W 19951129 |

OTHER SOURCE(S): MARPAT 125:143330

GI



AB Peptides WA1NR8CH(A2T)CONR9CH(A3R3)R4 [W = alkyl, (un)substituted aryl or fluorenyl, etc.; A1 = alkylene, NHCO, CO, CS, SO2; A2 = alkylene; T = H, aryl, heterocyclyl, OH, etc.; R8 = H, alkyl; R8 may link with A2T to form CH2C6H4CH2-o (Q); A3 = bond, alkylene; R3 = H, aryl, OH, etc.; R9 = H, alkyl or may link with A3R3 to form Q; R4 = CO2H, protected carboxy, carboxamido, etc. or CH(A3R3)R4 = N-alkyl-2-oxoquinoline moiety] or their pharmaceutically acceptable salts were prepd. for use as medicaments. Thus, dipeptide I was prepd. by acylation of

aspartylphenylalaninamide deriv. with 2-benzofurancarboxylic acid.
I and six other peptides showed 100% inhibition of NO prodn. in tests of murine macrophage cells.

L6 ANSWER 3 OF 3 DRUGB COPYRIGHT 2003 THOMSON DERWENT on STN
ACCESSION NUMBER: 1980-03894 B M
TITLE: ANALOGS OF L-ASPARTIC ACID IN CHEMOTHERAPY FOR CANCER.
AUTHOR: JAYARAM H N; COONEY D A
LOCATION: BETHESDA, MD., USA.
SOURCE: CANCER TREAT.REP. (63, NO.6, 1095-1108, 1979)
LANGUAGE: English

=> s l5 and ribosom?
L7 1223 L5 AND RIBOSOM?

=> s l7 and adenyl?
L8 512 L7 AND ADENYL?

=> s l8 and thiol?
L9 223 L8 AND THIOL?

=> s l9 and thioesteras?
L10 75 L9 AND THIOESTERAS?

=> dup rem l10
DUPLICATE IS NOT AVAILABLE IN 'GENBANK, DGENE'.
ANSWERS FROM THESE FILES WILL BE CONSIDERED UNIQUE
PROCESSING COMPLETED FOR L10
L11 74 DUP REM L10 (1 DUPLICATE REMOVED)

=> d ti l11 1-74

L11 ANSWER 1 OF 74 USPATFULL on STN
TI Methods and compositions for diagnosing and treating rheumatoid arthritis

L11 ANSWER 2 OF 74 USPATFULL on STN
TI Libraries of expressible gene sequences

L11 ANSWER 3 OF 74 USPATFULL on STN
TI Materials and methods to modulate ligand binding/enzymatic activity of alpha/beta proteins containing an allosteric regulatory site

L11 ANSWER 4 OF 74 USPATFULL on STN
TI Identification of modulatory molecules using inducible promoters

L11 ANSWER 5 OF 74 USPATFULL on STN
TI Genes and proteins for the biosynthesis of anthramycin

L11 ANSWER 6 OF 74 USPATFULL on STN
TI Production of polyketides

L11 ANSWER 7 OF 74 USPATFULL on STN
TI Libraries of expressible gene sequences

L11 ANSWER 8 OF 74 USPATFULL on STN
TI STAPHYLOCOCCUS AUREUS POLYNUCLEOTIDES AND SEQUENCES

L11 ANSWER 9 OF 74 USPATFULL on STN
TI Metastasis-associated genes

L11 ANSWER 10 OF 74 USPATFULL on STN
TI Human genes and gene expression products

L11 ANSWER 11 OF 74 USPATFULL on STN
 TI Staphylococcus aureus polynucleotides and sequences

L11 ANSWER 12 OF 74 USPATFULL on STN
 TI Nucleic acid sequences and expression system relating to Enterococcus faecium for diagnostics and therapeutics

L11 ANSWER 13 OF 74 USPATFULL on STN
 TI Nucleic acid and amino acid sequences relating to Acinetobacter baumannii for diagnostics and therapeutics

L11 ANSWER 14 OF 74 USPATFULL on STN
 TI Nucleic acid and amino acid sequences relating to pseudomonas aeruginosa for diagnostics and therapeutics

L11 ANSWER 15 OF 74 USPATFULL on STN
 TI Nucleotide sequence of the Haemophilus influenzae Rd genome, fragments thereof, and uses thereof

L11 ANSWER 16 OF 74 USPATFULL on STN
 TI Methods for the inhibition of epstein-barr virus transmission employing anti-viral peptides capable of abrogating viral fusion and transmission

L11 ANSWER 17 OF 74 USPATFULL on STN
 TI Nucleotide sequence of the Haemophilus influenzae Rd genome, fragments thereof, and uses thereof

L11 ANSWER 18 OF 74 USPATFULL on STN
 TI Novel Polynucleotides

L11 ANSWER 19 OF 74 USPATFULL on STN
 TI Genes for the biosynthesis of epothilones

L11 ANSWER 20 OF 74 USPATFULL on STN
 TI Methods for preparation of macrocyclic molecules and macrocyclic molecules prepared thereby

L11 ANSWER 21 OF 74 USPATFULL on STN
 TI Gene cluster for ramoplanin biosynthesis

L11 ANSWER 22 OF 74 USPATFULL on STN
 TI Stress-regulated genes of plants, transgenic plants containing same, and methods of use

L11 ANSWER 23 OF 74 USPATFULL on STN
 TI Nucleic acids, proteins and antibodies

L11 ANSWER 24 OF 74 USPATFULL on STN
 TI ENTEROCOCCUS FAECALIS POLYNUCLEOTIDES AND POLYPEPTIDES

L11 ANSWER 25 OF 74 USPATFULL on STN
 TI Molecular toxicology modeling

L11 ANSWER 26 OF 74 USPATFULL on STN
 TI Novel polynucleotides from atherogenic cells and polypeptides encoded thereby

L11 ANSWER 27 OF 74 USPATFULL on STN
 TI Methyl-D-erythritol phosphate pathway genes

L11 ANSWER 28 OF 74 USPATFULL on STN
 TI Microbiological production method for alpha-L-aspartyl-L-phenylalanine

L11 ANSWER 29 OF 74 USPATFULL on STN

TI Expressed sequences of arabidopsis thaliana

L11 ANSWER 30 OF 74 USPATFULL on STN

TI Expressed sequences of arabidopsis thaliana

L11 ANSWER 31 OF 74 USPATFULL on STN

TI Expressed sequences of arabidopsis thaliana

L11 ANSWER 32 OF 74 USPATFULL on STN

TI Methods for inhibition of membrane fusion-associated events, including respiratory syncytial virus transmission

L11 ANSWER 33 OF 74 USPATFULL on STN

TI Polynucleotides and polypeptides derived from corn ear

L11 ANSWER 34 OF 74 USPATFULL on STN

TI Multigene expression vectors for the biosynthesis of products via multienzyme biological pathways

L11 ANSWER 35 OF 74 USPATFULL on STN

TI Genes for the biosynthesis of epothilones

L11 ANSWER 36 OF 74 USPATFULL on STN

TI Genes for the biosynthesis of epothilones

L11 ANSWER 37 OF 74 USPATFULL on STN

TI Genes for the biosynthesis of epothilones

L11 ANSWER 38 OF 74 USPATFULL on STN

TI Genes for the biosynthesis of epothilones

L11 ANSWER 39 OF 74 USPATFULL on STN

TI Genes for the biosynthesis of epothilones

L11 ANSWER 40 OF 74 USPATFULL on STN

TI Computer readable genomic sequence of Haemophilus influenzae Rd, fragments thereof, and uses thereof

L11 ANSWER 41 OF 74 USPATFULL on STN

TI Genes for the biosynthesis of epothilones

L11 ANSWER 42 OF 74 USPATFULL on STN

TI Methods for using functional site descriptors and predicting protein function

L11 ANSWER 43 OF 74 USPATFULL on STN

TI Human respiratory syncytial virus peptides with antipathogenic and antiviral activities

L11 ANSWER 44 OF 74 CAPLUS COPYRIGHT 2003 ACS on STN

TI Analysis of the chromosome sequence of the legume symbiont Sinorhizobium meliloti strain 1021

L11 ANSWER 45 OF 74 CAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 1

TI Microbiological production method for .alpha.-L-aspartyl-L-phenylalanine

L11 ANSWER 46 OF 74 USPATFULL on STN

TI Genes for the biosynthesis of epothilones

L11 ANSWER 47 OF 74 USPATFULL on STN

TI Pyrrolnitrin biosynthesis genes and uses thereof

L11 ANSWER 48 OF 74 USPATFULL on STN

TI Genes for the synthesis of pyrrolnitrin

L11 ANSWER 49 OF 74 USPATFULL on STN
TI Pyrrolnitrin biosynthesis genes

L11 ANSWER 50 OF 74 USPATFULL on STN
TI Method of protecting plants by transformation with genes for the
synthesis of antipathogenic substances

L11 ANSWER 51 OF 74 USPATFULL on STN
TI Genes for the synthesis of antipathogenic substances

L11 ANSWER 52 OF 74 USPATFULL on STN
TI Genes for the synthesis of antipathogenic substances

L11 ANSWER 53 OF 74 USPATFULL on STN
TI Genes for the synthesis of antipathogenic substance

L11 ANSWER 54 OF 74 USPATFULL on STN
TI Genes for the synthesis of antipathogenic substances

L11 ANSWER 55 OF 74 GENBANK.RTM. COPYRIGHT 2003 on STN
TITLE (TI): Genome divergence in two Prochlorococcus ecotypes
reflects oceanic niche differentiation
TITLE (TI): Direct Submission

L11 ANSWER 56 OF 74 GENBANK.RTM. COPYRIGHT 2003 on STN
TITLE (TI): Genome divergence in two Prochlorococcus ecotypes
reflects oceanic niche differentiation
TITLE (TI): Direct Submission

L11 ANSWER 57 OF 74 GENBANK.RTM. COPYRIGHT 2003 on STN
TITLE (TI): Genome divergence in two Prochlorococcus ecotypes
reflects oceanic niche differentiation
TITLE (TI): Direct Submission

L11 ANSWER 58 OF 74 GENBANK.RTM. COPYRIGHT 2003 on STN
TITLE (TI): Comparative analysis of the genome sequences of
Bordetella pertussis, Bordetella parapertussis and
Bordetella bronchiseptica
TITLE (TI): Direct Submission

L11 ANSWER 59 OF 74 GENBANK.RTM. COPYRIGHT 2003 on STN
TITLE (TI): Comparative analysis of the genome sequences of
Bordetella pertussis, Bordetella parapertussis and
Bordetella bronchiseptica
TITLE (TI): Direct Submission

L11 ANSWER 60 OF 74 GENBANK.RTM. COPYRIGHT 2003 on STN
TITLE (TI): Comparative analysis of the genome sequences of
Bordetella pertussis, Bordetella parapertussis and
Bordetella bronchiseptica
TITLE (TI): Direct Submission

L11 ANSWER 61 OF 74 GENBANK.RTM. COPYRIGHT 2003 on STN
TITLE (TI): Complete genome sequence of the marine planctomycete
Pirellula sp. strain 1
TITLE (TI): Direct Submission

L11 ANSWER 62 OF 74 GENBANK.RTM. COPYRIGHT 2003 on STN
 TITLE (TI): Complete genome sequence of the marine planctomycete
 TITLE (TI): *Pirellula* sp. strain 1
 Direct Submission

L11 ANSWER 63 OF 74 GENBANK.RTM. COPYRIGHT 2003 on STN
 TITLE (TI): The complete genome sequence of *Mycobacterium bovis*
 TITLE (TI): Direct Submission

L11 ANSWER 64 OF 74 GENBANK.RTM. COPYRIGHT 2003 on STN
 TITLE (TI): The complete genome sequence of *Mycobacterium bovis*
 TITLE (TI): Direct Submission

L11 ANSWER 65 OF 74 GENBANK.RTM. COPYRIGHT 2003 on STN
 TITLE (TI): The complete genome sequence of *Mycobacterium bovis*
 TITLE (TI): Direct Submission

L11 ANSWER 66 OF 74 GENBANK.RTM. COPYRIGHT 2003 on STN
 TITLE (TI): The Genome Sequence of *Bacillus anthracis* Ames and
 TITLE (TI): Comparison to Closely-Related Bacteria
 Direct Submission

L11 ANSWER 67 OF 74 GENBANK.RTM. COPYRIGHT 2003 on STN
 TITLE (TI): Complete Genome Sequence and Comparative Genomics of
 TITLE (TI): *Shigella flexneri* Serotype 2a Strain 2457T
 Direct Submission

L11 ANSWER 68 OF 74 GENBANK.RTM. COPYRIGHT 2003 on STN
 TITLE (TI): Complete Sequence of *Pseudomonas syringae*
 TITLE (TI): Direct Submission

L11 ANSWER 69 OF 74 GENBANK.RTM. COPYRIGHT 2003 on STN
 TITLE (TI): Complete genome sequence of the model actinomycete
 TITLE (TI): *Streptomyces coelicolor* A3(2)
 Direct Submission

L11 ANSWER 70 OF 74 GENBANK.RTM. COPYRIGHT 2003 on STN
 TITLE (TI): Complete genome sequence of a multiple drug resistant
 TITLE (TI): *Salmonella enterica* serovar Typhi CT18
 Direct Submission

L11 ANSWER 71 OF 74 GENBANK.RTM. COPYRIGHT 2003 on STN
 TITLE (TI): The complete genome sequence of the murine respiratory
 TITLE (TI): pathogen *Mycoplasma pulmonis*
 Direct Submission

L11 ANSWER 72 OF 74 GENBANK.RTM. COPYRIGHT 2003 on STN
 TITLE (TI): Massive gene decay in the leprosy bacillus
 TITLE (TI): Direct Submission

L11 ANSWER 73 OF 74 GENBANK.RTM. COPYRIGHT 2003 on STN
 TITLE (TI): Complete genome structure of the nitrogen-fixing
 symbiotic bacterium *Mesorhizobium loti*

TITLE (TI): Direct Submission

L11 ANSWER 74 OF 74 GENBANK.RTM. COPYRIGHT 2003 on STN

TITLE (TI): Complete genome structure of the nitrogen-fixing
symbiotic bacterium Mesorhizobium loti

TITLE (TI): Direct Submission

=> d ibib abs l11 45 28

L11 ANSWER 45 OF 74 CAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 1

ACCESSION NUMBER: 2000:707301 CAPLUS

DOCUMENT NUMBER: 133:280654

TITLE: Microbiological production method for .alpha.-L-
aspartyl-L-phenylalanine

INVENTOR(S): Doekel, Sasha; Marahiel, Mohamed Abdalla; Quaedflieg,
Peter Jan Leonard Mario; Sonke, Theodorus

PATENT ASSIGNEE(S): Holland Sweetener Company V.O.F., Neth.

SOURCE: PCT Int. Appl., 70 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|--|----------|-----------------|------------|
| WO 2000058478 | A1 | 20001005 | WO 2000-NL206 | 20000328 |
| W: | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | |
| RW: | GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | |
| EP 1096011 | A1 | 20010502 | EP 1999-203518 | 19991026 |
| R: | AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO | | | |
| EP 1165799 | A1 | 20020102 | EP 2000-917475 | 20000328 |
| R: | AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO | | | |
| JP 2002539835 | T2 | 20021126 | JP 2000-608758 | 20000328 |
| BR 2000010398 | A | 20021203 | BR 2000-10398 | 20000328 |
| US 2002064834 | A1 | 20020530 | US 2001-966742 | 20011001 |
| PRIORITY APPLN. INFO.: | | | EP 1999-200954 | A 19990329 |
| | | | US 1999-133402P | P 19990510 |
| | | | EP 1999-203518 | A 19991026 |
| | | | WO 2000-NL206 | W 20000328 |

AB The present invention relates to a new, microbiol. method for the prodn. of .alpha.-L-**aspartyl-L-phenylalanine** (Asp-Phe) from the substrates L-**aspartic acid** (L-Asp) and L-**phenylalanine** (L-Phe) wherein the substrates are contacted, in the presence of ATP, with a non-ribosomal dipeptide **synthetase** comprising 2 minimal modules connected by one condensation domain. The N- and C-terminal modules recognize L-Asp and L-Phe, resp., and the latter module is covalently bound at its N-terminal end to the condensation domain; each of these minimal modules is composed of an **adenylation** domain and a 4'-phosphopantetheinyl cofactor contg. **thiolation** domain. The present invention also relates to novel DNA fragments or combination of DNA fragments encoding a new Asp-Phe **dipeptide synthetase**, microorganisms contg. such DNA fragments, as well as to the new Asp-Phe **dipeptide**

synthetase itself. Thus, Asp-Leu dimodular **peptide synthetase**-encoding DNA was obtained from the *Bacillus subtilis* ATCC 21332 surfactin **synthetase** A gene (*srfA-B*) by PCR. The Leu minimal domain-encoding DNA was replaced by a DNA from *Bacillus brevis* ATCC 8185 tyrocidine A **synthetase** gene *tycA* coding for a Phe minimal module. Then an integral **thioesterase** domain was added to the C-terminal end of the Asp-Phe encoding DNA by replacement of the **thiolation** domain of the Phe module by a PCR fragment coding for the *SrfA-C* **thiolation** and **thioesterase** domain. The resulting **dipeptide synthetase**, when expressed by *Escherichia coli* or *Bacillus* cells under fermn. conditions, produces Asp-Leu and the desired Asp-Phe, which is a precursor for the artificial sweetener Asp-Phe Me ester.

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 28 OF 74 USPATFULL on STN

ACCESSION NUMBER: 2002:126322 USPATFULL

TITLE: Microbiological production method for alpha-L-**aspartyl-L-phenylalanine**

INVENTOR(S): Doekel, Sascha, Vancouver, CANADA
 Marahiel, Mohamed A., Marburg, GERMANY, FEDERAL
 REPUBLIC OF
 Quaedflieg, Peter J.L.M., Geleen, NETHERLANDS
 Sonke, Theodorus, Sittard, NETHERLANDS

| | NUMBER | KIND | DATE |
|-----------------------|---|------|--------------|
| PATENT INFORMATION: | US 2002064834 | A1 | 20020530 |
| APPLICATION INFO.: | US 2001-966742 | A1 | 20011001 (9) |
| RELATED APPLN. INFO.: | Continuation of Ser. No. WO 2000-NL206, filed on 28 Mar 2000, UNKNOWN | | |

| | NUMBER | DATE |
|-----------------------|--|---------------|
| PRIORITY INFORMATION: | EP 1999-200954 | 19990329 |
| | EP 1999-203518 | 19991026 |
| | US 1999-133402P | 19990510 (60) |
| DOCUMENT TYPE: | Utility | |
| FILE SEGMENT: | APPLICATION | |
| LEGAL REPRESENTATIVE: | PILLSBURY WINTHROP LLP, 1600 TYSONS BOULEVARD, MCLEAN, VA, 22102 | |
| NUMBER OF CLAIMS: | 25 | |
| EXEMPLARY CLAIM: | 1 | |
| LINE COUNT: | 1289 | |

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention relates to a new, microbiological, method for the production of **alpha.-L-aspartyl-L-phenylalanine** (Asp-Phe) from the substrates **L-aspartic acid** (L-Asp) and **L-phenylalanine** (L-Phe) wherein the substrates are contacted, in the presence of ATP, with a **non-ribosomal dipeptide synthetase** comprising two minimal modules connected by one condensation domain wherein the N- resp. C-terminal modules are recognizing L-Asp and L-Phe, respectively, and the latter module is covalently bound at its N-terminal end to the condensation domain, and wherein each of these minimal modules is composed of an **adenylation** domain and a 4'-phosphopantetheinyl cofactor containing **thiolation** domain, and that the Asp-Phe formed is recovered. The present invention also relates to novel DNA fragments or combination of DNA fragments encoding a new Asp-Phe **dipeptide synthetase**, micro-organisms containing such DNA fragments, as well as to the new Asp-Phe **dipeptide synthetases** itself.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=> d his

(FILE 'HOME' ENTERED AT 16:46:30 ON 03 SEP 2003)

FILE 'REGISTRY' ENTERED AT 16:46:57 ON 03 SEP 2003

E ASPARTYL?

E ASPARTYLPHENYL?

L1

17 S E6

INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, AQUASCI, BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CANCERLIT, CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DRUGB, DRUGLAUNCH, DRUGMONOG2, ...' ENTERED AT 17:00:47 ON 03 SEP 2003

SEA (13433-09-5 OR ASPARTYLPHENYL?) AND (SYNTHETAS? OR SYNTHAS?)

2 FILE CAPLUS

1 FILE DDFB

1 FILE DRUGB

L2

QUE (13433-09-5 OR ASPARTYLPHENYL?) AND (SYNTHETAS? OR SYNTHAS?)

SEA (DIPEPTID? OR PEPTID?) (S) (SYNTHETAS? OR SYNTHAS?)

13 FILE ADISCTI

11 FILE ADISINSIGHT

3 FILE ADISNEWS

331 FILE AGRICOLA

12 FILE ANABSTR

54 FILE AQUASCI

49 FILE BIOBUSINESS

15 FILE BIOCOMMERCE

4116 FILE BIOSIS

505 FILE BIOTECHABS

505 FILE BIOTECHDS

1865 FILE BIOTECHNO

571 FILE CABA

606 FILE CANCERLIT

2949 FILE CAPLUS

52 FILE CEABA-VTB

4 FILE CEN

7 FILE CIN

30 FILE CONFSCI

14 FILE CROPB

14 FILE CROPU

44 FILE DDFB

151 FILE DDFU

4682 FILE DGENE

44 FILE DRUGB

4 FILE DRUGNL

231 FILE DRUGU

5 FILE DRUGUPDATES

62 FILE EMBAL

3252 FILE EMBASE

2198 FILE ESBIODBASE

245* FILE FEDRIP

16 FILE FROSTI

58 FILE FSTA

1265 FILE GENBANK

233 FILE IFIPAT

380 FILE JICST-EPLUS

3 FILE KOSMET

1503 FILE LIFESCI

3019 FILE MEDLINE

2 FILE NIOSHTIC
 17 FILE NTIS
 6 FILE OCEAN
 1247 FILE PASCAL
 3 FILE PHAR
 1 FILE PHIC
 12 FILE PHIN
 34 FILE PROMT
 3218 FILE SCISEARCH
 1 FILE SYNTHLINE
 1027 FILE TOXCENTER
 2134 FILE USPATFULL
 56 FILE USPAT2
 5 FILE VETU
 361 FILE WPIDS
 361 FILE WPINDEX
 7 FILE IPA
 6 FILE NAPRALERT
 37 FILE NLDB

L3

QUE (DIPEPTID? OR PEPTID?) (S) (SYNTHETAS? OR SYNTHAS?)

SEA (DIPEPTID? OR PEPTID?) (S) (SYNTHETAS? OR SYNTHAS?) AND (AS

1 FILE ADISCTI
 1 FILE ADISINSIGHT
 13 FILE AGRICOLA
 3 FILE AQUASCI
 10 FILE BIOBUSINESS
 219 FILE BIOSIS
 41 FILE BIOTECHABS
 41 FILE BIOTECHDS
 113 FILE BIOTECHNO
 18 FILE CABA
 19 FILE CANCERLIT
 214 FILE CAPLUS
 2 FILE CEABA-VTB
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 1 FILE CROPB
 1 FILE CROPU
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 3 FILE DDFU
 65 FILE DGENE
 3 FILE DRUGB
 11 FILE DRUGU
 3 FILE EMBAL
 206 FILE EMBASE
 86 FILE ESBIODASE
 11* FILE FEDRIP
 1 FILE FROSTI
 4 FILE FSTA
 437 FILE GENBANK
 34 FILE IFIPAT
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 102 FILE LIFESCI
 171 FILE MEDLINE
 1 FILE NTIS
 47 FILE PASCAL
 1 FILE PHIN
 1 FILE PROMT
 150 FILE SCISEARCH
 64 FILE TOXCENTER
 1132 FILE USPATFULL
 36 FILE USPAT2

27 FILE WPIDS
27 FILE WPINDEX
1 FILE NLDB
L4 QUE (DIPEPTID? OR PEPTID?) (S) (SYNTHETAS? OR SYNTHAS?) AND (AS

FILE 'USPATFULL, GENBANK, BIOSIS, CAPLUS, EMBASE, MEDLINE, SCISEARCH,
BIOTECHNO, LIFESCI, ESBIODASE, DGENE, WPIDS, DRUGB' ENTERED AT 17:08:19
ON 03 SEP 2003

L5 2925 S (DIPEPTID? OR PEPTID?) (S) (SYNTHETAS? OR SYNTHAS?) AND (ASPA
L6 3 S (13433-09-5 OR ASPARTYLPHENYL?) AND (SYNTHETAS? OR SYNTHAS?)
L7 1223 S L5 AND RIBOSOM?
L8 512 S L7 AND ADENYL?
L9 223 S L8 AND THIOL?
L10 75 S L9 AND THIOESTERAS?
L11 74 DUP REM L10 (1 DUPLICATE REMOVED)

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WEST**Freeform Search****Database:**

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 US Pre-Grant Publication Full-Text Database
 JPO Abstracts Database
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 IBM Technical Disclosure Bulletins

Term:

L6 and ATP\$4

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Search History**DATE:** Wednesday, September 03, 2003 [Printable Copy](#) [Create Case](#)**Set Name Query**
side by side**Hit Count Set Name**
result set

DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP=OR

| | | | |
|-----------|---|------|-----------|
| <u>L7</u> | L6 and ATP\$4 | 28 | <u>L7</u> |
| <u>L6</u> | L5 and thioesteras\$5 | 34 | <u>L6</u> |
| <u>L5</u> | L4 and condensat\$4 | 56 | <u>L5</u> |
| <u>L4</u> | L2 and (adenyl\$4 or thiol\$6) | 170 | <u>L4</u> |
| <u>L3</u> | L2 and (marahie\$3 or doeke\$3 or sonke\$3 or quaedflie\$4).in. | 3 | <u>L3</u> |
| <u>L2</u> | L1 same (asp\$6 or phe\$10) | 437 | <u>L2</u> |
| <u>L1</u> | (peptid\$3 or dipeptid\$3) same (synthetas\$3 or synthas\$3) | 2424 | <u>L1</u> |

END OF SEARCH HISTORY

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Search Results - Record(s) 1 through 3 of 3 returned.

☐ 1. Document ID: US 20020064834 A1

L3: Entry 1 of 3

File: PGPB

May 30, 2002

PGPUB-DOCUMENT-NUMBER: 20020064834

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020064834 A1

TITLE: Microbiological production method for alpha-L-aspartyl-L-phenylalanine

PUBLICATION-DATE: May 30, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY | RULE-47 |
|--------------------------|-----------|-------|---------|---------|
| Doekel, Sascha | Vancouver | | CA | |
| Marahiel, Mohamed A. | Marburg | | DE | |
| Quaedflieg, Peter J.L.M. | Geleen | | NL | |
| Sonke, Theodorus | Sittard | | NL | |

US-CL-CURRENT: 435/71.1; 435/69.1

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KMIC | Draw Desc |
|-------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|--------|------|-----------|
| Image | | | | | | | | | | | | |

☐ 2. Document ID: EP 1096011 A1

L3: Entry 2 of 3

File: EPAB

May 2, 2001

PUB-NO: EP001096011A1

DOCUMENT-IDENTIFIER: EP 1096011 A1

TITLE: Microbiological production method for alpha-L-aspartyl-L-phenylalanine

PUBN-DATE: May 2, 2001

INVENTOR-INFORMATION:

| NAME | COUNTRY |
|---------------------------------|---------|
| DOEKEL, SASCHA | DE |
| MARAHIEL, MOHAMED ABDALLA | DE |
| QUAEDFLIEG, PETER JAN LEONARD M | NL |
| SONKE, THEODORUS | NL |

INT-CL (IPC): C12 N 15/52; C12 N 15/62; C12 N 9/00; C07 K 5/06EUR-CL (EPC): C12N009/00; C12N015/52

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KMIC | Draw Desc |
|-------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|--------|------|-----------|
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☐ 3. Document ID: JP 2002539835 W WO 200058478 A1 AU 200038439 A EP 1096011 A1
EP 1165799 A1 KR 2001112931 A US 20020064834 A1 CN 1353757 A BR 200010398 A

L3: Entry 3 of 3

File: DWPI

Nov 26, 2002

DERWENT-ACC-NO: 2000-611714

DERWENT-WEEK: 200307

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TITLE: Microbiological production of alpha-L-aspartyl-L-phenylalanine intermediate for
sweetenerINVENTOR: DOEKEL, S ; MARAHIEL, M A ; QUAEDFLIEG, P J L M ; SONKE, T

PRIORITY-DATA: 1999EP-0203518 (October 26, 1999), 1999EP-0200954 (March 29, 1999)

PATENT-FAMILY:

| PUB-NO | PUB-DATE | LANGUAGE | PAGES | MAIN-IPC |
|-------------------|-------------------|----------|-------|------------|
| JP 2002539835 W | November 26, 2002 | | 065 | C12N015/09 |
| WO 200058478 A1 | October 5, 2000 | E | 070 | C12N015/52 |
| AU 200038439 A | October 16, 2000 | | 000 | C12N015/52 |
| EP 1096011 A1 | May 2, 2001 | E | 000 | C12N015/52 |
| EP 1165799 A1 | January 2, 2002 | E | 000 | C12N015/52 |
| KR 2001112931 A | December 22, 2001 | | 000 | C12P021/02 |
| US 20020064834 A1 | May 30, 2002 | | 000 | C12P021/04 |
| CN 1353757 A | June 12, 2002 | | 000 | C12N015/52 |
| BR 200010398 A | December 3, 2002 | | 000 | C12N015/52 |

INT-CL (IPC): C07 K 5/06; C12 N 1/21; C12 N 9/00; C12 N 15/09; C12 N 15/52; C12 N
15/62; C12 P 21/02; C12 P 21/04; C12 N 1/21; C12 N 1/21; C12 R 1/07; C12 R 1/19

| | | | | | | | | | | | |
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| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc |
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| Terms | Documents |
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Search Results - Record(s) 1 through 10 of 28 returned.

☐ 1. Document ID: US 20030054436 A1

L7: Entry 1 of 28

File: PGPB

Mar 20, 2003

PGPUB-DOCUMENT-NUMBER: 20030054436
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030054436 A1

TITLE: STAPHYLOCOCCUS AUREUS POLYNUCLEOTIDES AND SEQUENCES

PUBLICATION-DATE: March 20, 2003

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY | RULE-47 |
|--------------------|---------------|-------|---------|---------|
| KUNSCH, CHARLES A. | GAITHERSBURG | MD | US | |
| CHOI, GIL A. | ROCKVILLE | MD | US | |
| BARASH, STEVEN C. | ROCKVILLE | MD | US | |
| DILLON, PATRICK J. | GAITHERSBURG | MD | US | |
| FANNON, MICHAEL R. | SILVER SPRING | MD | US | |
| ROSEN, CRAIG A. | LAYTONSVILLE | MD | US | |

US-CL-CURRENT: 435/69.1; 435/252.3, 435/320.1, 536/23.1, 536/23.7

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc |
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| Image | | | | | | | | | | | | |

☐ 2. Document ID: US 20020192778 A1

L7: Entry 2 of 28

File: PGPB

Dec 19, 2002

PGPUB-DOCUMENT-NUMBER: 20020192778
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020192778 A1

TITLE: Genes for the biosynthesis of epothilones

PUBLICATION-DATE: December 19, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY | RULE-47 |
|----------------------|---------------|-------|---------|---------|
| Schupp, Thomas | Mohlin | NC | CH | |
| Ligon, James Madison | Apex | NC | US | |
| Molnar, Istvan | Durham | NC | US | |
| Zirkle, Ross | Raleigh | NC | US | |
| Cyr, Devon Dawn | Fuquay-Varina | NC | US | |
| Gorlach, Jorn | Durham | | US | |

US-CL-CURRENT: 435/183; 435/252.3, 435/320.1, 435/69.1, 536/23.2

| Full Image | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc |
|---------------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|--------|------|-----------|
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☐ 3. Document ID: US 20020164747 A1

L7: Entry 3 of 28

File: PGPB

Nov 7, 2002

PGPUB-DOCUMENT-NUMBER: 20020164747

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020164747 A1

TITLE: Gene cluster for ramoplanin biosynthesis

PUBLICATION-DATE: November 7, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY | RULE-47 |
|----------------------|------------|-------|---------|---------|
| Farnet, Chris M. | Outremont | | CA | |
| Zazopoulos, Emmanuel | Outremont | | CA | |
| Staffa, Alfredo | St-Leonard | | CA | |

US-CL-CURRENT: 435/193; 435/320.1, 435/325, 435/69.1, 536/23.2

| Full Image | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments |
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| KWIC | Draw Desc |
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☐ 4. Document ID: US 20020151681 A1

L7: Entry 4 of 28

File: PGPB

Oct 17, 2002

PGPUB-DOCUMENT-NUMBER: 20020151681

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020151681 A1

TITLE: Nucleic acids, proteins and antibodies

PUBLICATION-DATE: October 17, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY | RULE-47 |
|------------------|--------------|-------|---------|---------|
| Rosen, Craig A. | Laytonsville | MD | US | |
| Ruben, Steven M. | Olney | MD | US | |

US-CL-CURRENT: 530/350; 435/320.1, 435/325, 435/69.3, 536/23.5

| Full Image | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments |
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| KWIC | Draw Desc |
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☐ 5. Document ID: US 20020064834 A1

L7: Entry 5 of 28

File: PGPB

May 30, 2002

PGPUB-DOCUMENT-NUMBER: 20020064834
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020064834 A1

TITLE: Microbiological production method for alpha-L-aspartyl-L-phenylalanine

PUBLICATION-DATE: May 30, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY | RULE-47 |
|--------------------------|-----------|-------|---------|---------|
| Doekel, Sascha | Vancouver | | CA | |
| Marahiel, Mohamed A. | Marburg | | DE | |
| Quaedflieg, Peter J.L.M. | Geleen | | NL | |
| Sonke, Theodorus | Sittard | | NL | |

US-CL-CURRENT: 435/71.1; 435/69.1

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KMIC | Draw Desc |
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☐ 6. Document ID: US 20020009730 A1

L7: Entry 6 of 28

File: PGPB

Jan 24, 2002

PGPUB-DOCUMENT-NUMBER: 20020009730
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020009730 A1

TITLE: Human stress array

PUBLICATION-DATE: January 24, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY | RULE-47 |
|---------------------|-----------|-------|---------|---------|
| Chenchik, Alex | Palo Alto | CA | US | |
| Lukashev, Matvey E. | Newton | MA | US | |

US-CL-CURRENT: 435/6; 536/24.3

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KMIC | Draw Desc |
|-------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|------|-----------|
| Image | | | | | | | | | | | |

☐ 7. Document ID: US 20010051335 A1

L7: Entry 7 of 28

File: PGPB

Dec 13, 2001

PGPUB-DOCUMENT-NUMBER: 20010051335
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20010051335 A1

TITLE: POLYNUCLEOTIDES AND POLYPEPTIDES DERIVED FROM CORN TASSEL

PUBLICATION-DATE: December 13, 2001

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY | RULE-47 |
|-----------------------|------------|-------|---------|---------|
| LALGUDI, RAGHUNATH V. | CLAYTON | MO | US | |
| ITO, LAURA Y. | PLEASANTON | CA | US | |
| SHERMAN, BRADLEY K. | OAKLAND | CA | US | |

US-CL-CURRENT: 435/6; 435/69.1

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc |
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☐ 8. Document ID: US 6593114 B1

L7: Entry 8 of 28

File: USPT

Jul 15, 2003

US-PAT-NO: 6593114

DOCUMENT-IDENTIFIER: US 6593114 B1

TITLE: Staphylococcus aureus polynucleotides and sequences

DATE-ISSUED: July 15, 2003

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|--------------------|---------------|-------|----------|---------|
| Kunsch; Charles A. | Norcross | GA | | |
| Choi; Gil H. | Rockville | MD | | |
| Barash; Steven | Rockville | MD | | |
| Dillon; Patrick J. | Carlsbad | CA | | |
| Fannon; Michael R. | Silver Spring | MD | | |
| Rosen; Craig A. | Laytonsville | MD | | |

US-CL-CURRENT: 435/91.41; 435/252.3, 435/254.11, 435/257.2, 435/320.1, 435/325,
435/91.4, 536/23.7

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc |
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☐ 9. Document ID: US 6583275 B1

L7: Entry 9 of 28

File: USPT

Jun 24, 2003

US-PAT-NO: 6583275

DOCUMENT-IDENTIFIER: US 6583275 B1

TITLE: Nucleic acid sequences and expression system relating to Enterococcus faecium for diagnostics and therapeutics

DATE-ISSUED: June 24, 2003

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|-------------------------|------------|-------|----------|---------|
| Doucette-Stamm; Lynn A. | Framingham | MA | | |
| Bush; David | Somerville | MA | | |

US-CL-CURRENT: 536/23.1; 435/243, 435/320.1, 435/325, 435/6, 536/24.3, 536/24.32

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc |
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☐ 10. Document ID: US 6562958 B1

L7: Entry 10 of 28

File: USPT

May 13, 2003

US-PAT-NO: 6562958

DOCUMENT-IDENTIFIER: US 6562958 B1

TITLE: Nucleic acid and amino acid sequences relating to *Acinetobacter baumannii* for diagnostics and therapeutics

DATE-ISSUED: May 13, 2003

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|--------------|-------------|-------|----------|---------|
| Breton; Gary | Marlborough | MA | | |
| Bush; David | Somerville | MA | | |

US-CL-CURRENT: 536/23.7; 536/23.1

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc |
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| L6 and ATP\$4 | 28 |

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WEST[Generate Collection](#)[Print](#)**Search Results - Record(s) 11 through 20 of 28 returned.**☐ 11. Document ID: US 6476212 B1

L7: Entry 11 of 28

File: USPT

Nov 5, 2002

US-PAT-NO: 6476212

DOCUMENT-IDENTIFIER: US 6476212 B1

**** See image for Certificate of Correction ****

TITLE: Polynucleotides and polypeptides derived from corn ear

DATE-ISSUED: November 5, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|-----------------------|------------|-------|----------|---------|
| Lalgudi; Raghunath V. | Clayton | MO | | |
| Ito; Laura Y. | Pleasanton | CA | | |
| Sherman; Bradley K. | Oakland | CA | | |

US-CL-CURRENT: 536/23.6; 435/6, 536/24.3

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc |
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| Image | | | | | | | | | | | | |

☐ 12. Document ID: US 6383787 B1

L7: Entry 12 of 28

File: USPT

May 7, 2002

US-PAT-NO: 6383787

DOCUMENT-IDENTIFIER: US 6383787 B1

**** See image for Certificate of Correction ****

TITLE: Genes for the biosynthesis of epothilones

DATE-ISSUED: May 7, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|----------------------|---------------|-------|----------|---------|
| Schupp; Thomas | Mohlin | | | CH |
| Ligon; James Madison | Apex | NC | | |
| Molnar; Istvan | Durham | NC | | |
| Zirkle; Ross | Raleigh | NC | | |
| Cyr; Devon Dawn | Fuquay-Varina | NC | | |
| Gorlach; Jorn | Durham | NC | | |

US-CL-CURRENT: 435/183; 435/193, 435/252.3, 435/252.35, 435/320.1, 536/23.1, 536/23.2, 536/23.7

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc |
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☐ 13. Document ID: US 6358719 B1

L7: Entry 13 of 28

File: USPT

Mar 19, 2002

US-PAT-NO: 6358719

DOCUMENT-IDENTIFIER: US 6358719 B1

TITLE: Genes for the biosynthesis of epothilones

DATE-ISSUED: March 19, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|----------------------|---------------|-------|----------|---------|
| Schupp; Thomas | Mohlin | | | CH |
| Ligon; James Madison | Apex | NC | | |
| Molnar; Istvan | Durham | NC | | |
| Zirkle; Ross | Raleigh | NC | | |
| Cyr; Devon Dawn | Fuquay-Varina | NC | | |
| Gorlach; Jorn | Durham | NC | | |

US-CL-CURRENT: 435/189; 435/252.3, 435/252.35, 435/320.1, 536/23.1, 536/23.2, 536/23.7

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc |
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| Image | | | | | | | | | | | |

☐ 14. Document ID: US 6358712 B1

L7: Entry 14 of 28

File: USPT

Mar 19, 2002

US-PAT-NO: 6358712

DOCUMENT-IDENTIFIER: US 6358712 B1

TITLE: Ordered gene assembly

DATE-ISSUED: March 19, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|--------------------|-----------|-------|----------|---------|
| Jarrell; Kevin A. | Lincoln | MA | | |
| Coljee; Vincent W. | Cambridge | MA | | |
| Donahue; William | Quincy | MA | | |
| Mikheeva; Svetlana | Allston | MA | | |

US-CL-CURRENT: 435/91.1; 435/6, 435/91.2, 435/91.3, 435/91.52, 536/23.1

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc |
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☐ 15. Document ID: US 6355459 B1

L7: Entry 15 of 28

File: USPT

Mar 12, 2002

US-PAT-NO: 6355459

DOCUMENT-IDENTIFIER: US 6355459 B1

TITLE: Genes for the biosynthesis of epothilones

DATE-ISSUED: March 12, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|----------------------|---------------|-------|----------|---------|
| Schupp; Thomas | Mohlin | | | CH |
| Ligon; James Madison | Apex | NC | | |
| Molnar; Istvan | Durham | NC | | |
| Zirkle; Ross | Raleigh | NC | | |
| Cyr; Devon Dawn | Fuquay-Varina | NC | | |
| Gorlach; Jorn | Durham | NC | | |

US-CL-CURRENT: 435/183; 435/189, 435/193, 435/232, 435/252.3, 435/252.35, 435/320.1, 536/23.2

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc |
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☐ 16. Document ID: US 6355458 B1

L7: Entry 16 of 28

File: USPT

Mar 12, 2002

US-PAT-NO: 6355458

DOCUMENT-IDENTIFIER: US 6355458 B1

TITLE: Genes for the biosynthesis of epothilones

DATE-ISSUED: March 12, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|----------------------|---------------|-------|----------|---------|
| Schupp; Thomas | Mohlin | | | CH |
| Ligon; James Madison | Apex | NC | | |
| Molnar; Istvan | Durham | NC | | |
| Zirkle; Ross | Raleigh | NC | | |
| Cyr; Devon Dawn | Fuquay-Varina | NC | | |
| Gorlach; Jorn | Durham | NC | | |

US-CL-CURRENT: 435/183; 435/189, 435/193, 435/232, 435/252.3, 435/252.35, 435/320.1, 530/300, 536/23.1, 536/23.2, 536/23.7

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc |
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☐ 17. Document ID: US 6355457 B1

L7: Entry 17 of 28

File: USPT

Mar 12, 2002

US-PAT-NO: 6355457

DOCUMENT-IDENTIFIER: US 6355457 B1

TITLE: Genes for the biosynthesis of epothilones

DATE-ISSUED: March 12, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|----------------------|---------------|-------|----------|---------|
| Schupp; Thomas | Mohlin | | | CH |
| Ligon; James Madison | Apex | NC | | |
| Molnar; Istvan | Durham | NC | | |
| Zirkle; Ross | Raleigh | NC | | |
| Cyr; Devon Dawn | Fuquay-Varina | NC | | |
| Gorlach; Jorn | Durham | NC | | |

US-CL-CURRENT: 435/183; 435/189, 435/193, 435/195, 435/196, 435/232, 435/252.3,
435/252.35, 435/320.1, 530/300, 536/23.1, 536/23.2, 536/23.7

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments |
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☐ 18. Document ID: US 6346404 B1

L7: Entry 18 of 28

File: USPT

Feb 12, 2002

US-PAT-NO: 6346404

DOCUMENT-IDENTIFIER: US 6346404 B1

**** See image for Certificate of Correction ****

TITLE: Genes for the biosynthesis of epothilones

DATE-ISSUED: February 12, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|----------------------|---------------|-------|----------|---------|
| Schupp; Thomas | Mohlin | | | CH |
| Ligon; James Madison | Apex | NC | | |
| Molnar; Istvan | Durham | NC | | |
| Zirkle; Ross | Raleigh | NC | | |
| Cyr; Devon Dawn | Fuquay-Varina | NC | | |
| Gorlach; Jorn | Durham | NC | | |

US-CL-CURRENT: 435/183; 435/189, 435/193, 435/232, 435/252.3, 435/252.35, 435/320.1,
530/350, 536/23.1, 536/23.2, 536/23.7

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments |
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| KWMC | Draw Desc |
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☐ 19. Document ID: US 6143561 A

L7: Entry 19 of 28

File: USPT

Nov 7, 2000

US-PAT-NO: 6143561

DOCUMENT-IDENTIFIER: US 6143561 A

TITLE: DNA encoding plastid pyruvate dehydrogenase and branched chain oxoacid dehydrogenase components

DATE-ISSUED: November 7, 2000

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|---------------------|-------------|-------|----------|---------|
| Randall; Douglas D. | Columbia | MO | | |
| Mooney; Brian P. | Columbia | MO | | |
| Johnston; Mark L. | Gales Ferry | CT | | |
| Luethy; Michael H. | Old Mystic | CT | | |
| Miernyk; Jan A. | Peoria | IL | | |

US-CL-CURRENT: 435/419; 435/252.3, 435/320.1, 536/23.2, 536/23.6

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KMHC | Draw Desc |
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| Image | | | | | | | | | | | |

☐ 20. Document ID: US 6121029 A

L7: Entry 20 of 28

File: USPT

Sep 19, 2000

US-PAT-NO: 6121029

DOCUMENT-IDENTIFIER: US 6121029 A

TITLE: Genes for the biosynthesis of epothilones

DATE-ISSUED: September 19, 2000

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|----------------------|---------------|-------|----------|---------|
| Schupp; Thomas | Mohlin | | | CH |
| Ligon; James Madison | Apex | NC | | |
| Molnar; Istvan | Durham | NC | | |
| Zirkle; Ross | Raleigh | NC | | |
| Cyr; Devon Dawn | Fuquay-Varina | NC | | |
| Gorlach; Jorn | Durham | NC | | |

US-CL-CURRENT: 435/183; 435/189, 435/193, 435/232, 435/252.3, 435/252.35, 435/320.1, 530/300, 536/23.1, 536/23.2, 536/23.7

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KMHC | Draw Desc |
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Search Results - Record(s) 21 through 28 of 28 returned.☐ 21. Document ID: US 6117670 A

L7: Entry 21 of 28

File: USPT

Sep 12, 2000

US-PAT-NO: 6117670

DOCUMENT-IDENTIFIER: US 6117670 A

TITLE: Pyrrolnitritin biosynthesis genes and uses thereof

DATE-ISSUED: September 12, 2000

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|-----------------------|------------|-------|----------|---------|
| Ligon; James Madison | Apex | NC | | |
| Hill; Dwight Steven | Cary | NC | | |
| Lam; Stephen Ting | Raleigh | NC | | |
| Hammer; Philip Eugene | Cary | NC | | |
| van Pee; Karl-Heinz | Bannewitz | | | DE |
| Kirner; Sabine | Puchheim | | | DE |
| Young; Thomas R. | Vero Beach | FL | | |

US-CL-CURRENT: 435/252.33; 435/189, 435/232, 435/252.3, 435/320.1, 536/23.1, 536/23.2, 536/23.7

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KMC | Draw Desc |
|-------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|--------|-----|-----------|
| Image | | | | | | | | | | | | |

☐ 22. Document ID: US 5817502 A

L7: Entry 22 of 28

File: USPT

Oct 6, 1998

US-PAT-NO: 5817502

DOCUMENT-IDENTIFIER: US 5817502 A

TITLE: Genes for the synthesis of pyrrolnitritin

DATE-ISSUED: October 6, 1998

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|---------------------|-----------|-------|----------|---------|
| Ligon; James M. | Apex | NC | | |
| Hill; Dwight Steven | Cary | NC | | |
| Lam; Stephen Ting | Raleigh | NC | | |
| Hammer; Philip E. | Cary | NC | | |
| van Pee; Karl-Heinz | Bannewitz | | | DE |
| Kirner; Sabine | Puchheim | | | DE |

US-CL-CURRENT: 435/252.34; 435/117, 435/252.3, 435/252.33, 435/320.1, 435/69.1,
435/71.1, 536/23.2, 536/23.7

| Full Image | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc |
|---------------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|--------|------|-----------|
|---------------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|--------|------|-----------|

☐ 23. Document ID: US 5723759 A

L7: Entry 23 of 28

File: USPT

Mar 3, 1998

US-PAT-NO: 5723759

DOCUMENT-IDENTIFIER: US 5723759 A

TITLE: Pyrrolnitrin biosynthesis genes

DATE-ISSUED: March 3, 1998

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|---------------------|---------|-------|----------|---------|
| Ligon; James M. | Basel | | | CH |
| Hill; Dwight Steven | Cary | NC | | |
| Ryals; John Andrew | Durham | NC | | |
| Lam; Stephen Ting | Raleigh | NC | | |
| Hammer; Philip E. | Cary | NC | | |

US-CL-CURRENT: 800/301; 435/117, 435/252.3, 435/320.1, 435/69.1, 435/70.1, 536/23.2,
536/23.7

| Full Image | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc |
|---------------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|------|-----------|
|---------------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|------|-----------|

☐ 24. Document ID: US 5698425 A

L7: Entry 24 of 28

File: USPT

Dec 16, 1997

US-PAT-NO: 5698425

DOCUMENT-IDENTIFIER: US 5698425 A

TITLE: Method of protecting plants by transformation with genes for the synthesis of antipathogenic substances

DATE-ISSUED: December 16, 1997

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|---------------------|---------|-------|----------|---------|
| Ligon; James M. | Basel | | | CH |
| Schupp; Thomas | Mohlin | | | CH |
| Beck; James Joseph | Cary | NC | | |
| Hill; Dwight Steven | Cary | NC | | |
| Ryals; John Andrew | Durham | NC | | |
| Lam; Stephen Ting | Raleigh | NC | | |
| Hammer; Philip E. | Cary | NC | | |
| Uknes; Scott Joseph | Apex | NC | | |

US-CL-CURRENT: 800/279; 435/117, 435/418, 435/419, 435/69.1, 435/70.1

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KMIC | Draw Desc |
|-------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|------|-----------|
| Image | | | | | | | | | | | |

☐ 25. Document ID: US 5679560 A

L7: Entry 25 of 28

File: USPT

Oct 21, 1997

US-PAT-NO: 5679560

DOCUMENT-IDENTIFIER: US 5679560 A

TITLE: Genes for the synthesis of antipathogenic substances

DATE-ISSUED: October 21, 1997

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|---------------------|---------|-------|----------|---------|
| Ligon; James M. | Apex | NC | | |
| Hill; Dwight Steven | Cary | NC | | |
| Lam; Stephen Ting | Raleigh | NC | | |
| Hammer; Philip E. | Cary | NC | | |

US-CL-CURRENT: 435/183; 435/253.3, 435/41

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KMIC | Draw Desc |
|-------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|------|-----------|
| Image | | | | | | | | | | | |

☐ 26. Document ID: US 5662898 A

L7: Entry 26 of 28

File: USPT

Sep 2, 1997

US-PAT-NO: 5662898

DOCUMENT-IDENTIFIER: US 5662898 A

**** See image for Certificate of Correction ****

TITLE: Genes for the synthesis of antipathogenic substances

DATE-ISSUED: September 2, 1997

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|-----------------------|-------------|-------|----------|---------|
| Ligon; James M. | Basel | | | CH |
| Schupp; Thomas | Mohlin | | | CH |
| Beck; James Joseph | Cary | NC | | |
| Hill; Dwight Steven | Cary | NC | | |
| Ryals; John Andrew | Durham | NC | | |
| Gaffney; Thomas Deane | Chapel Hill | NC | | |
| Lam; Stephen Ting | Raleigh | NC | | |
| Hammer; Philip E. | Cary | NC | | |
| Uknes; Scott Joseph | Apex | NC | | |

US-CL-CURRENT: 424/93.2; 435/252.3

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KMIC | Draw Desc |
|-------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|------|-----------|
| Image | | | | | | | | | | | |

☐ 27. Document ID: US 5643774 A

L7: Entry 27 of 28

File: USPT

Jul 1, 1997

US-PAT-NO: 5643774

DOCUMENT-IDENTIFIER: US 5643774 A

**** See image for Certificate of Correction ****

TITLE: Genes for the synthesis of antipathogenic substance

DATE-ISSUED: July 1, 1997

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|-----------------------|-------------|-------|----------|---------|
| Ligon; James M. | Basel | | | CH |
| Schupp; Thomas | Mohlin | | | CH |
| Beck; James Joseph | Cary | NC | | |
| Hill; Dwight Steven | Cary | NC | | |
| Ryals; John Andrew | Durham | NC | | |
| Gaffney; Thomas Deane | Chapel Hill | NC | | |
| Lam; Stephen Ting | Raleigh | NC | | |
| Hammer; Philip E. | Cary | NC | | |
| Uknes; Scott Joseph | Apex | NC | | |

US-CL-CURRENT: 435/183; 435/69.1

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KMIC | Draw Desc |
|-------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|------|-----------|
| Image | | | | | | | | | | | |

☐ 28. Document ID: US 5639949 A

L7: Entry 28 of 28

File: USPT

Jun 17, 1997

US-PAT-NO: 5639949

DOCUMENT-IDENTIFIER: US 5639949 A

TITLE: Genes for the synthesis of antipathogenic substances

DATE-ISSUED: June 17, 1997

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|---------------------|---------|-------|----------|---------|
| Ligon; James M. | Basel | | | CH |
| Hill; Dwight Steven | Cary | NC | | |
| Ryals; John Andrew | Durham | NC | | |
| Lam; Stephen Ting | Raleigh | NC | | |
| Hammer; Philip E. | Cary | NC | | |

US-CL-CURRENT: 800/301, 435/117, 435/252.33, 435/252.34, 435/320.1, 435/69.1,
435/71.1, 536/23.2, 536/23.7

| | | | | | | | | | | | |
|-------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|------|-----------|
| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KMIC | Draw Desc |
| Image | | | | | | | | | | | |

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